CATALOG #86

Plastic Capacitors INC.

MANUFACTURERS

- CAPACITORS
- HV POWER PACKS
- PULSE FORMING NETWORKS
- HI-VOLTAGE TRANSFORMERS

TERMS AND CONDITIONS OF SALE

PLASTIC CAPACITORS, INC., reserves the right to refuse any order. An order is not accepted until it is acknowledged by the Factory.

ADJUSTMENT OF CLAIMS: Claims for loss, damage or non-delivery of goods should be filed with the carrier. If necessary, we will assist you by providing copies of bills of lading, delivery receipts, etc. Claims arising due to clerical errors, shortages or incorrect parts shipment should be made within 10 days from receipt of goods. Please reference your purchase order number and our invoice number.

CANCELLATION OR DECREASE OF ORDER. Orders cannot be cancelled without our consent. When possible, cancellation will be accepted without charge; for work in process, we reserve the right to charge for any expenses incurred in assembly, processing or for the purchase of raw materials for the order.

DELAYS. We cannot be responsible for delays in shipments for any reason whatsoever.

SHIPMENTS. Unless otherwise directed by your order, partial shipments will be made if the order is not complete in our stock.

TERMS OF PAYMENT. Net 30 days to accounts with credit established. F.O.B. point is Chicago, Illinois, our plant.

PRICES vary with the quantity ordered, number of releases and the time span in which you schedule your order for shipment. Our quotations are generally firm for 60 days, as specified on our quote. Orders with deliveries extending into subsequent years are subject to price in effect on date of shipment. Taxes, if any, are not included in our quotation.

RETURN OF GOODS. MERCHANDISE WHICH IS TO BE RETURNED FOR CREDIT, EXCHANGE OR REPAIR CANNOT BE RETURNED WITHOUT OUR CONSENT AND ADVICE AS TO MODE OF TRANSPORTATION AND INSURANCE COVERAGE REQUIRED. PLEASE GIVE SPECIFIC REASONS FOR RETURN.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

With the pace of today's living, it is not often we who manage Plastic Capacitors, Inc., have the opportunity to meet our cutomers personally. So to our valued old customers we would like to say "Thank you, for your continued business and for helping us grow since 1952." To those of you who may be new "Hello, and what problem can we help you solve?"

WARNING . . . HIGH VOLTAGE

THE VOLTAGE POTENTIALS ENCOUNTERED WITH THE USE OF MANY OF THE ITEMS IN THIS CATALOG MAY BE LETHAL. UTMOST CARE SHOULD BE EXERCISED IN THE USE OF THESE PRODUCTS TO ASSURE THAT THE VOLTAGE OR POWER SOURCE IS DISCONNECTED AND THAT THE DEVICE IS PROPERLY GROUNDED AND SHORTED BEFORE SERVICING THE EQUIPMENT INTO WHICH IT IS INSTALLED. INSTALLATION SHOULD COMPLY WITH ALL FEDERAL, STATE AND LOCAL ELECTRICAL CODE REQUIREMENTS.

LIMITED WARRANTY

PLASTIC CAPACITORS, INC. warrants its products under normal usage and service, against defects in workmanship or materials, for a period of ONE (1) YEAR from the date of delivery.

The sole obligation of PLASTIC CAPACITORS under this warranty shall be to repair or replace any part which, in the opinion of PLASTIC CAPACITORS, shall prove to be defective in normal use and service within said ONE (1) YEAR period from the date of delivery. This warranty does not cover normal wear and tear. In addition, the warranty shall be null and void if the equipment is modified, improperly installed or used, or damaged by accident or neglect, or otherwise repaired by another party during the aforesaid warranty period. PLASTIC CAPACITORS reserves the right, in its sole discretion, to replace any product or part thereof, found to be defective.

Defective products shall be returned, freight prepaid, directly to: PLASTIC CAPACITORS, INC., 2623 North Pulaski Road, Chicago, Illinois 60639.

THE ABOVE WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, INCLUDING ANY *IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.* PLASTIC CAPACITORS shall not be liable for any damages sustained by its customer or any other party arising from or relating to any product failure, including but not limited to consequential damages, nor shall PLASTIC CAPACITORS have any liability for delays in replacement or repair of its products.

No agent, representative, dealer or employee of PLASTIC CAPACITORS shall have the authority to increase, alter or otherwise modify the provisions of this LIMITED WARRANTY.

Plastic Capacitors, Inc.
2623 N. PULASKI RD.•CHICAGO, IL 60639•Area 312, 489-2229
• TWX 910-221-1354
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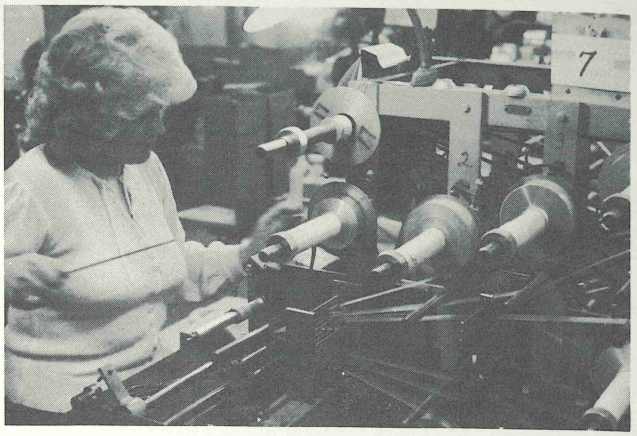
N ABOUT PLASTIC CAPACITORS, INC.

WHAT IS A CAPACITOR?

The dictionary definition is not terribly satisfactory for the non-technical person. It reads: "A device giving capacitance, usually consisting of conducting plates or foils separated by thin layers of dielectric with the plates on opposite sides of the dielectric layers oppositely charged by a source of voltage and the electrical energy of the charged system stored in the polarized dielectric."

A better description could be: "A device consisting essentially of 2 conducting surfaces (foils) separated by an insulating material such as air, oil, paper, plastic, ceramic, glass, etc. It can: block the flow of direct current; block the flow of alternating current to a degree dependent on its capacitance and frequency; store energy and release it in one large bang."

In archaic usage, a capacitor was called a condenser. This term is still used today, primarily by auto mechanics and air conditioning repairmen.

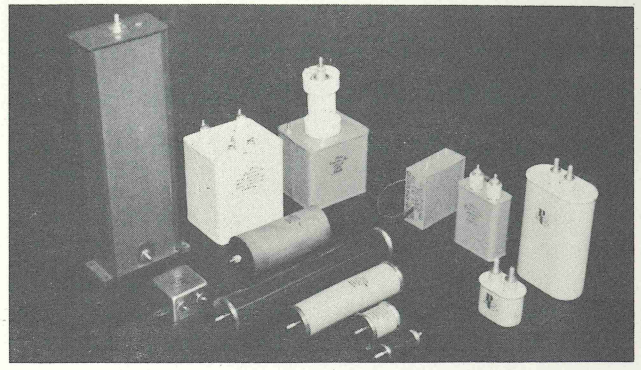


This photograph shows a capacitor being wound, with alternating layers of capacitor tissue (paper) and Mylar* film. In this particular instance, there are 3 film and 4 paper layers, alternating, between each foil.

TYPES OF PRODUCTS MANUFACTURED

CAPACITORS

A wide assortment of capacitors is offered within this catalog . . . a product line that will satisfy virtually any high voltage requirement. The thousands of catalog items and variations are complimented by many years of design experience in producing special configurations for defense, industrial and commercial applications. Discharge capacitors are available from P.C.I. as our "LJ" line or on special order in other configurations. CONSULT OUR ENGINEERING STAFF WITH YOUR SPECIFIC APPLICATIONS.



PULSE-FORMING NETWORKS

PFN's for short, these are components which deliver a shaped pulse of energy at a high level of intensity. Used in radar systems, this shapes the pulse of power that is transmitted, reflected by a flying object and received to form the "blip" on the radar screen. Basically, a PFN is just a bank of capacitors connected to a specially tuned coil. For an in-depth examination of this topic, see pages F1 thru F4 in this catalog.

POWER SUPPLIES

Plastic Capacitors, Inc., manufactures a standard, off-the-shelf, series of AC to high voltage DC power packs . . . our widely specified "HV-M" series.

These are generally referred to as "brute force" power supplies, since they are not considered to have close regulation as regards input voltage fluctuation vs. output voltage change.

All standard line items function within specified parameters with inputs of 50 to 500 Hz, sine wave or square wave, at the rated input voltage. The standard "HV-M" series is designed for U.S. domestic line voltage; the "HV-M" export series is constructed with separate inputs for 220, 230, and 240 volts. Both are stocked, the domestic series in depth. All are single phase power operation.

SPECIAL POWER SUPPLIES

What do you need? A non-metallic case, to avoid the need for a large, expensive bushing? A plug in output for X-ray use? A higher voltage or current rating than is shown in our catalog? How about a 500 Hz input or a low voltage DC to HV DC supply? Call us!

HIGH VOLTAGE TRANSFORMERS

We manufacture our own transformers for the power packs that we supply. Over the years, we have also supplied custom high voltage transformers for electronic applications. Usually, our XFMRS are hermetically sealed and filled with a non-toxic oil, to inhibit corona; we can also supply open-frame or encapsulated assemblies, as your design criteria may specify. Call or write for more information.

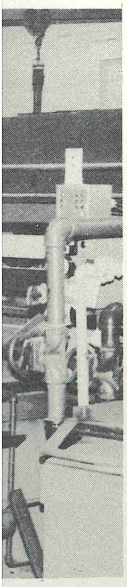
CP-70 CANS

We manufacture most of the rectangular cans that we use, the military designation being the CP-70 style of MIL-C-25. These are offered for sale, should you need an inexpensive method of packaging a delicate component board.

CORONA SUPPRESSION DEVICES

The corona caps and corona spheres that are used on our "OT" capacitors and "HV-M" power packs are available for sale and can make excellent add-ons to your existing equipment.

★ DUPONT POLYESTER FILM



GENERAL INFORMATION ABOU

HISTORY

Incorporated in the State of Illinois under a Charter issued July 11, 1952, Plastic Capacitors, Inc., has remained a privately held corporation. Its history has included a steady record of expansion, research and product reliability. Employing about 100 people, it is classified as a "Small Business" by U.S. Government definitions. Due to its manageable size, it is usually more responsive to special customer requirements than large firms might be.

P.C.I. product lines are a combination of off-the-shelf and specialty High Voltage products. About half of sales are represented by custom designed items that are not contained in this catalog. Capacitors for 250KV RMS 60HZ powerline use or high frequency AC; power supplies for X-ray CAT scanners, lasers and electrostatic coating; are examples of commonplace production at P.C.I.

The headquarters for Plastic Capacitors, Inc., is a building of 50,000 square feet, covering an acre of land, located on the northwest side of Chicago. All of our products are made with pride in the U.S.A.

With a Chicago location, in the industrial heartland of the United States, Plastic Capacitors, Inc., has access to the most complete transportation center in the world . . . O'Hare International Airport, the Port of Chicago, huge rail and truck terminals in Chicago, Joliet and Peoria, Illinois . . . which provide daily service to all domestic markets and hundreds of overseas destinations.

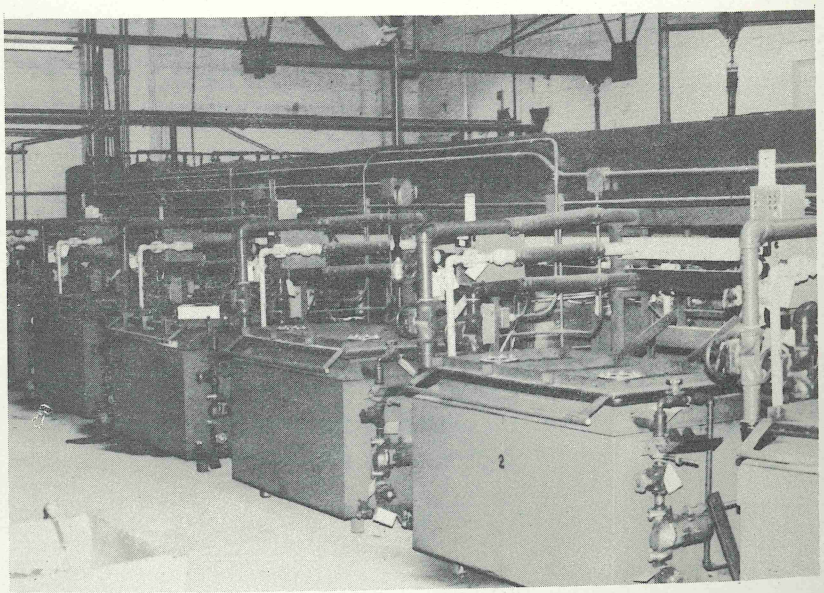
SPECIALIZED EQUIPMENT

SPECIALIZED EQUIPMENT is extensively used in the manufacturing operations at P.C.I.; the vacuum impregnation system for oil filling the parts; capacitor winding machines; process ovens; firing kilns and numerous items of test equipment are among the things that have been fabricated in our own machine shop, commercially produced equivalents not being on the market.

This equipment is part of the vacuum system used to fill most of our products with oil. With a total cubic capacity approximating that of a small home, specially purified oil is stored under vacuum, pumped into the vacuum tanks and finished units are usually sealed under vacuum.

Cascaded pumps with high efficiency blowers permit a vacuum with a pressure of less than 10 microns of mercury . . . thus assuring minimal air and moisture retention in the capacitors. This promotes longest life.

The only dielectric fluids used are those which are not considered to pose a threat to the ecology.



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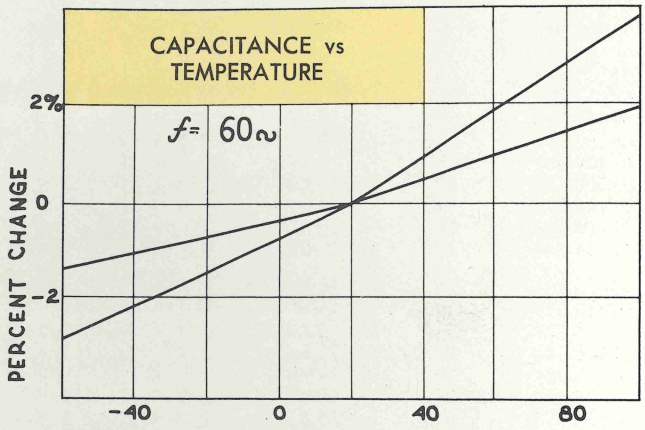
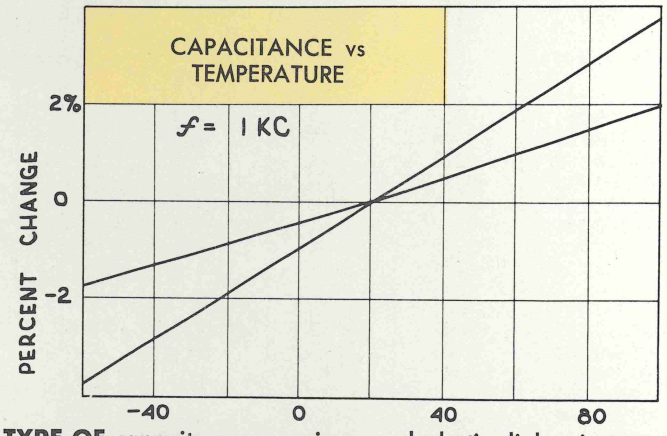
TYPE OF

85°C GLASS CAP — PLASTIC FILM DC FILTER





TYPE OF capacitors are an improved plastic dielectric capacitor impregnated with a highly purified and inhibited Mineral Oil.

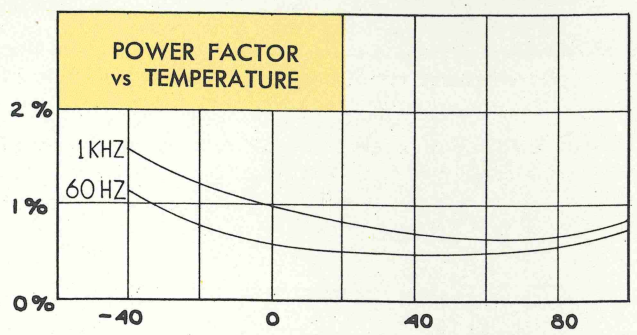
TEMPERATURE RANGE — 55°C to 85°C with nameplate voltage applied. Derate to 60% nameplate voltage for operation at 105°C. Non-operating temperature range—65° to 110°C, also available.

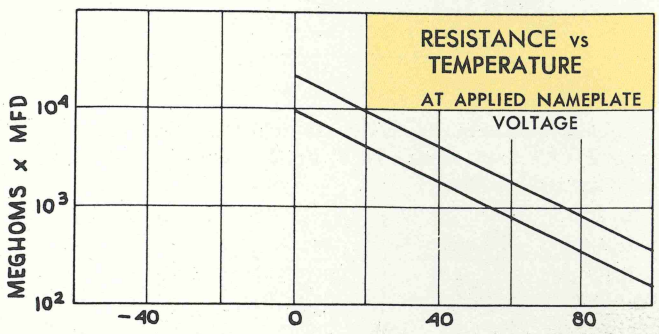
TEST VOLTAGE. Thru 20KV rating, 200%; above 20KV rating, 150% of nameplate voltage. Capacitors charged for 1 minute.

CAPACITANCE TOLERANCE. Standard capacitance tolerance is ±10%. Also available in ±5% and ±2% tolerance. Standard tolerances not marked.

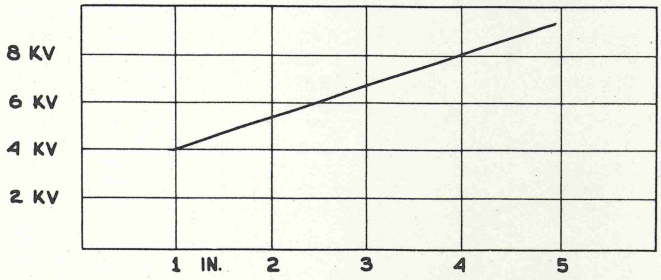
LIFE. Type OF capacitors are designed for continuous operation at 85°C for 10,000 hours at an ambient temperature of 85°C with nameplate voltage applied. A suitable test to indicate compliance is operation for 250 hours at 85°C with 140% nameplate voltage applied. Compliance is indicated by not more than one failure in a sample lot of 12.

MOUNTING POSITION. Any.





ALTITUDE. Type OF capacitors are designed for operation at barometric pressures greater than 20 inches of mercury. Transport non-operating at 100,000 feet.



Safe operating voltage vs tube length at 50,000 feet.

RIPPLE. The peak ripple voltage plus the DC voltage should not exceed the nameplate voltage. Acceptable peak to peak ripple voltage in percent of nameplate voltage follows.

Frequency CPS	Peak to Peak Ripple Voltage %	Frequency CPS	Peak to Peak Ripple Voltage %
60	25	400	5
120	20	1000	3

Type OF capacitors are designed to pass the tests and exceed the requirements of Mil-C-25D (Characteristic E) except for high altitude flashover (See Altitude). VIBRATION & SHOCK Mil-C-25D consult factory for recommended mounting.

DIELECTRIC RESISTANCE (parallel resistance) is indicated by the curve R vs T. This curve expresses limits with *nameplate voltage* applied and 2 minute electrification time. Limitations 10^4 megohms x mfd. or 10^4 megohms whichever is less at room temperature.

TERMINALS are 8-32 x 3/8" long for diameters of 3/4" or greater. Smaller diameters are supplied with #18 tinned copper axial pigtails. Other size studs, pigtails and solder lugs are available.

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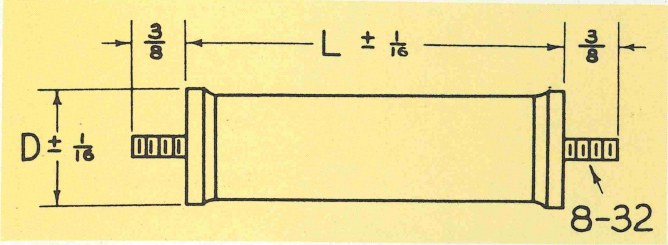
TYPE OF

85°C GLASS CAP – PLASTIC FILM DC FILTER

CONTAINER is a hard glass pillar with silver fused to each end. A non-magnetic metal ferrule is soldered to each end assuring hermetic sealing. The brass stud is tin plated.

THE AIR BUBBLE in each unit may or may not be visible between the label and the glass tube.



All glass containers with 'D' dimensions of 19/32 have 2-1/2 inch long 18 A.W.G. (.040") tinned copper pigtail leads.

PART NUMBER	CAP MFD	VOLTS DC	DIMENSIONS L	D
OF20-102	.001	2000	1 3/16	19/32
OF20-202	.002	2000	1 3/16	19/32
OF20-502	.005	2000	1 3/16	19/32
OF20-103	.01	2000	1 3/16	19/32
OF20-203	.02	2000	1 9/16	19/32
OF20-503	.05	2000	1 3/4	3/4
OF20-104	0.1	2000	2 1/4	3/4
OF20-254	0.25	2000	2 3/4	29/32
OF20-504	0.5	2000	2 1/4	1 3/8
OF30-102	.001	3000	1 3/16	19/32
OF30-202	.002	3000	1 3/16	19/32
OF30-502	.005	3000	1 3/16	19/32
OF30-103	.01	3000	1 9/16	19/32
OF30-203	.02	3000	1 3/4	3/4
OF30-503	.05	3000	2 1/4	3/4
OF30-104	0.1	3000	1 3/4	1 1/8
OF30-254	0.25	3000	2	1 3/8
OF30-504	0.5	3000	2 3/4	1 5/8
OF40-102	.001	4000	1 3/16	19/32
OF40-202	.002	4000	1 3/16	19/32
OF40-502	.005	4000	1 3/16	19/32
OF40-103	.01	4000	1 3/16	3/4
OF40-203	.02	4000	1 3/4	3/4
OF40-503	.05	4000	2	13/16
OF40-104	0.1	4000	2	1 1/8
OF40-254	0.25	4000	2 1/4	1 5/8
OF40-504	0.5	4000	3 3/4	1 5/8
OF50-201	.0002	5000	1 3/16	19/32
OF50-501	.0005	5000	1 3/16	19/32
OF50-102	.001	5000	1 3/16	19/32
OF50-202	.002	5000	1 3/16	19/32
OF50-502	.005	5000	1 5/8	19/32
OF50-103	.01	5000	1 3/4	3/4
OF50-203	.02	5000	2 1/4	3/4
OF50-503	.05	5000	2 1/4	29/32
OF50-104	0.1	5000	2 1/4	1 3/8
OF50-254	0.25	5000	3	1 5/8
OF50-504	0.5	5000	6	1 5/8
OF60-101	.0001	6000	1 9/16	19/32
OF60-201	.0002	6000	1 9/16	19/32
OF60-501	.0005	6000	1 9/16	19/32
OF60-102	.001	6000	1 9/16	19/32
OF60-202	.002	6000	1 9/16	19/32
OF60-502	.005	6000	1 5/8	19/32
OF60-103	.01	6000	1 3/4	3/4
OF60-203	.02	6000	2 1/4	3/4
OF60-503	.05	6000	3 1/4	29/32
OF60-104	0.1	6000	3	1 3/8
OF60-254	0.25	6000	4	1 5/8
OF60-504	0.5	6000	6 3/4	1 5/8

PART NUMBER	CAP MFD	VOLTS DC	DIMENSIONS L	D
OF80-101	.0001	8000	1 9/16	19/32
OF80-201	.0002	8000	1 9/16	19/32
OF80-501	.0005	8000	1 9/16	19/32
OF80-102	.001	8000	1 9/16	19/32
OF80-202	.002	8000	1 3/4	19/32
OF80-502	.005	8000	1 3/4	3/4
OF80-103	.01	8000	2 1/4	3/4
OF80-203	.02	8000	2 3/4	29/32
OF80-503	.05	8000	2 3/4	1 3/8
OF80-104	0.1	8000	3 5/8	1 5/8
OF80-204	0.2	8000	7	1 5/8
OF100-101	.0001	10 KV	1 5/8	19/32
OF100-201	.0002	10 KV	1 5/8	19/32
OF100-501	.0005	10 KV	1 5/8	19/32
OF100-102	.001	10 KV	1 5/8	19/32
OF100-202	.002	10 KV	1 5/8	3/4
OF100-502	.005	10 KV	1 3/4	13/16
OF100-103	.01	10 KV	2 1/4	29/32
OF100-203	.02	10 KV	2 3/4	1 1/8
OF100-503	.05	10 KV	2 3/4	1 5/8
OF100-603	.06	10 KV	3	1 5/8
OF100-104	0.1	10 KV	5	1 5/8
OF150-101	.0001	15 KV	2 1/4	19/32
OF150-201	.0002	15 KV	2 1/4	19/32
OF150-501	.0005	15 KV	2 1/4	19/32
OF150-102	.001	15 KV	2 1/4	3/4
OF150-202	.002	15 KV	2 1/4	3/4
OF150-502	.005	15 KV	2 3/4	1 1/8
OF150-103	.01	15 KV	3 3/4	1 1/8
OF150-203	.02	15 KV	4 1/4	1 3/8
OF150-503	.05	15 KV	7	1 5/8
OF150-603	.06	15 KV	8	1 5/8
OF200-101	.0001	20 KV	3 1/2	19/32
OF200-201	.0002	20 KV	3 1/2	19/32
OF200-501	.0005	20 KV	3 1/2	19/32
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OF200-203	.02	20 KV	4 1/2	1 5/8
OF200-403	.04	20 KV	7 1/4	1 5/8
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OF300-203	.02	30 KV	9	1 5/8
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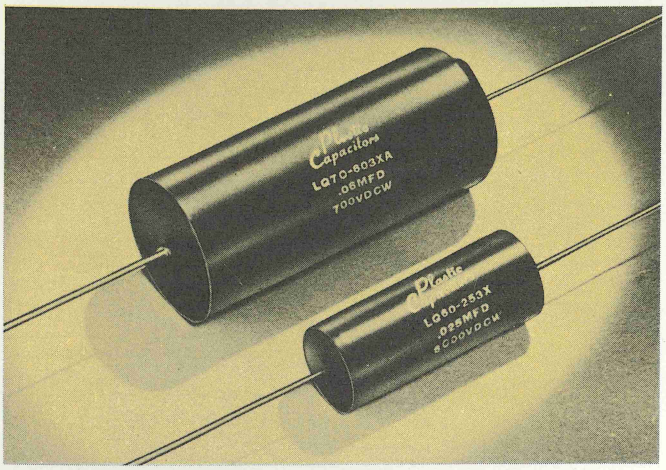
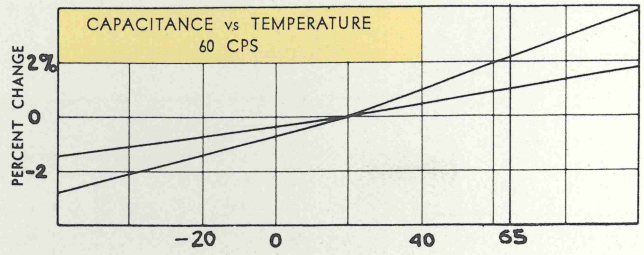
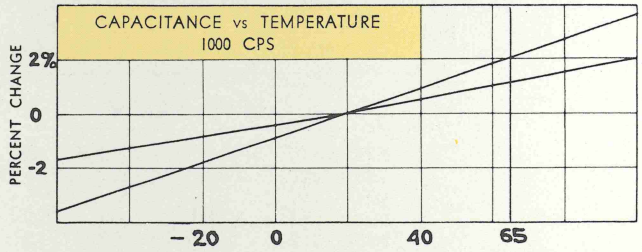
OF400-602	.006	40 KV	8	1 5/8
OF500-101	.0001	50 KV	8 1/4	3/4
OF500-201	.0002	50 KV	8 1/4	3/4
OF500-501	.0005	50 KV	8 1/4	3/4
OF500-102	.001	50 KV	8 1/4	13/16
OF500-202	.002	50 KV	8 1/4	1 1/8
OF500-502	.005	50 KV	10 3/4	1 3/8
OF500-602	.006	50 KV	10 3/4	1 3/8
OF600-101	.0001	60 KV	10	3/4
OF600-201	.0002	60 KV	10	3/4
OF600-501	.0005	60 KV	10	3/4
OF600-102	.001	60 KV	10	29/32
OF600-202	.002	60 KV	10	1 3/8
OF600-502	.005	60 KV	11 1/2	1 5/8

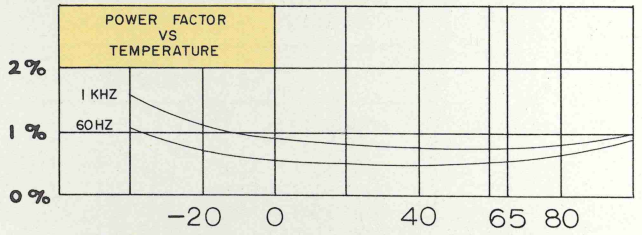
TYPE LQ

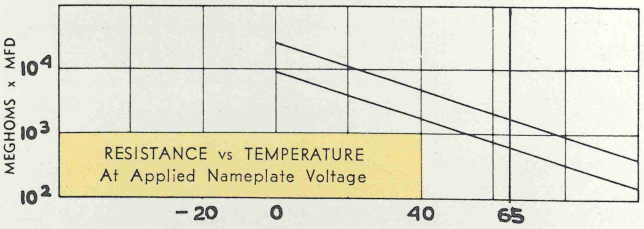
65°C PHENOLIC CAP — PLASTIC FILM DC FILTER











RIPPLE: The peak ripple voltage plus the DC voltage should not exceed the nameplate voltage. Acceptable peak to peak ripple voltage in percent of nameplate voltage follows.

Frequency CPS	Peak to Peak Ripple Voltage %
60	25
120	20
400	5
1000	3

PHYSICAL DESCRIPTION

TYPE LQ capacitors are designed for DC application such as filtering, bypass and coupling applications.

TYPE LQ capacitors are offered with internal construction variations designed to meet various circuit conditions. The following suffix letters identify these constructions.

SUFFIX "V" is extended foil (non-inductively wound), providing soldered contacts thruout. These capacitors are useful when used as a filter in a power supply which has a very low current output, or if the capacitor must supply high surge currents. They are oil impregnated, and epoxy filled.

SUFFIX "Y" is the standard inserted tab construction for filter and bypass applications and are oil impregnated, and epoxy filled.

THE CASE is a black phenolic shell. The epoxy end fill is heat resistant and provides a positive seal to the phenolic shell.

IMPREGNANT used for suffix types "V" and "Y" is a highly refined, purified and inhibited combination of natural mineral oil and a synthetic oil, the flash point is greater than 145°C when measured per method 110.3.4 of specification VV-L-791.

MOUNTING POSITION All types LQ capacitors will operate satisfactorily in any mounting position.

TERMINALS are Copperweld leads. The wire gauge used is a function of the case size and varies from #22 to #20 wire.

AC APPLICATIONS The phenolic shell is a useful housing for low cost alternating current applications. By the judicious use of available low loss dielectrics, the frequency range can be extended to 30 megahertz. **Submit application for recommendations.**

TEST CONDITIONS

TEST VOLTAGE: Terminal to terminal is 150% rated voltage for one minute without a permanent breakdown.

CAPACITANCE TOLERANCE. Standard capacitance tolerance is ±20°. Also available in ±10° tolerance. Standard tolerances not marked.

TEMPERATURE RANGE—20°C to 65°C with nameplate voltage applied.

DIELECTRIC RESISTANCE is given in the "R vs. T" graph. Measurement can be made with nameplate voltage. Capacitance values under 1 mfd. need not exceed two times the graph value per mfd. at any temperature.

LIFE. Type LQ capacitors are designed for continuous operation at 65°C for 10,000 hours.

HUMIDITY RESISTANCE Test will meet requirements of EIA RS 164.

Plastic Capacitors, Inc.
2623 N. PULASKI RD. • CHICAGO, IL 60639 • Area 312, 489-2229
• TWX 910-221-1354
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TYPE LQ

65°C PHENOLIC CAP — PLASTIC FILM DC FILTER

SUFFIX "V" Extended foil oil impregnated.

1000 VDCW

PART NUMBER	CAP. MFD.	DIA. ±1/16	LG. +1/8 −1/16
LQ10-203V	.02	1/2	1 1/4
LQ10-503V	.05	1/2	1 1/2
LQ10-104V	0.1	5/8	1 7/8
LQ10-254V	.25	3/4	2 1/4
LQ10-504V	.5	1	2 1/2
LQ10-105V	1.0	1 7/16	3
LQ10-205V	2.0	1 13/16	3
LQ10-405V	4.0	2 1/16	4

1500 VDCW

LQ15-203V	.02	1/2	1 1/2
LQ15-503V	.05	5/8	1 7/8
LQ15-104V	0.1	3/4	2
LQ15-254V	.25	7/8	2 1/2
LQ15-504V	.5	1 7/16	3
LQ15-105V	1.0	2 1/16	3
LQ15-205V	2.0	2 1/16	3 1/2

2000 VDCW

LQ20-103V	.01	1/2	1 1/2
LQ20-203V	.02	1/2	1 1/2
LQ20-503V	.05	5/8	1 7/8
LQ20-104V	0.1	3/4	2 1/4
LQ20-254V	.25	1	2 1/2
LQ20-504V	.5	1 7/16	3
LQ20-105V	1.0	1 13/16	3
LQ20-205V	2.0	2 1/16	3 1/2

3000 VDCW

LQ30-103V	.01	5/8	1 1/2
LQ30-203V	.02	5/8	1 7/8
LQ30-503V	.05	3/4	2 1/4
LQ30-104V	0.1	7/8	2 1/2
LQ30-254V	.25	1 7/16	3
LQ30-504V	.5	1 13/16	3
LQ30-105V	1.0	2 1/16	3 1/2

4000 VDCW

LQ40-502V	.005	1/2	1 1/2
LQ40-103V	.01	5/8	1 1/2
LQ40-203V	.02	5/8	1 7/8
LQ40-503V	.05	7/8	2 1/4
LQ40-104V	0.1	1	2 1/2
LQ40-254V	.25	1 7/16	3 5/16
LQ40-504V	.5	1 13/16	3 5/16
LQ40-105V	1.0	2 1/16	4

5000 VDCW

LQ50-202V	.002	1/2	1 1/2
LQ50-502V	.005	1/2	1 1/2
LQ50-103V	.01	5/8	1 7/8
LQ50-203V	.02	3/4	2
LQ50-503V	.05	7/8	2 1/4
LQ50-104V	0.1	1 7/16	3
LQ50-254V	.25	1 13/16	3

6000 VDCW

LQ60-202V	.002	5/8	1 7/8
LQ60-502V	.005	5/8	1 7/8
LQ60-103V	.01	3/4	2
LQ60-203V	.02	7/8	2 1/4
LQ60-503V	.05	1 7/16	3
LQ60-104V	0.1	1 7/16	3 5/16

8000 VDCW

LQ80-502V	.005	1 7/16	3
LQ80-103V	.01	1 7/16	3
LQ80-203V	.02	1 7/16	3
LQ80-503V	.05	1 13/16	3
LQ80-104V	0.1	2 1/16	3 1/2

10000 VDCW

LQ100-202V	.002	1 7/16	3
LQ100-502V	.005	1 7/16	3
LQ100-103V	.01	1 7/16	3
LQ100-203V	.02	1 7/16	3
LQ100-503V	.05	2 1/16	3
LQ100-104V	0.1	2 1/16	4

12000 VDCW

LQ120-103V	.01	1 7/16	3 5/16
LQ120-203V	.02	1 13/16	3 5/16
LQ120-503V	.05	2 1/16	4

SUFFIX "Y" Inserted tab oil impregnated.

1000 VDCW

LQ10-503Y	.05	1/2	1 1/4
LQ10-104Y	.01	5/8	1 1/2
LQ10-254Y	.25	3/4	2
LQ10-504Y	.5	7/8	2 1/2
LQ10-105Y	1.0	1 7/16	3
LQ10-205Y	2.0	1 13/16	3
LQ10-405Y	4.0	2 1/16	3 1/2

1500 VDCW

LQ15-203Y	.02	1/2	1 1/4
LQ15-503Y	.05	5/8	1 1/2
LQ15-104Y	0.1	5/8	1 7/8
LQ15-254Y	.25	7/8	2 1/4
LQ15-504Y	.5	1 7/16	3
LQ15-105Y	1.0	1 13/16	3
LQ15-205Y	2.0	2 1/16	3

2000 VDCW

LQ20-203Y	.02	1/2	1 1/4
LQ20-503Y	.05	5/8	1 1/2
LQ20-104Y	0.1	3/4	1 3/4
LQ20-254Y	.25	7/8	2 1/2
LQ20-504Y	.5	1 7/16	3
LQ20-105Y	1.0	1 13/16	3
LQ20-205Y	2.0	2 1/16	3 1/2

3000 VDCW

LQ30-103Y	.01	1/2	1 1/2
LQ30-203Y	.02	5/8	1 1/2
LQ30-503Y	.05	3/4	2
LQ30-104Y	0.1	7/8	2 1/4
LQ30-204Y	.2	1 7/16	3
LQ30-504Y	.5	1 13/16	3
LQ30-105Y	1.0	2 1/16	3 1/2

4000 VDCW

LQ40-502Y	.005	1/2	1 1/4
LQ40-103Y	.01	1/2	1 1/2
LQ40-203Y	.02	5/8	1 1/2
LQ40-503Y	.05	3/4	2 1/4
LQ40-104Y	0.1	7/8	2 1/2
LQ40-254Y	.25	1 7/16	3
LQ40-504Y	.5	1 13/16	3
LQ40-105Y	1.0	2 1/16	4

5000 VDCW

LQ50-502Y	.005	1/2	1 1/4
LQ50-103Y	.01	5/8	1 1/2
LQ50-203Y	.02	5/8	1 7/8
LQ50-503Y	.05	7/8	2 1/4
LQ50-104Y	0.1	1	2 1/2
LQ50-254Y	.25	1 7/16	3 5/16
LQ50-504Y	.5	2 1/16	3

6000 VDCW

LQ60-202Y	.002	1/2	1 1/2
LQ60-502Y	.005	5/8	1 1/2
LQ60-103Y	.01	5/8	1 7/8
LQ60-203Y	.02	3/4	2 1/4
LQ60-503Y	.05	1 7/16	3
LQ60-104Y	0.1	1 7/16	3
LQ60-254Y	.25	2 1/16	3 1/2

8000 VDCW

LQ80-502Y	.005	5/8	1 7/8
LQ80-103Y	.01	3/4	2 1/4
LQ80-203Y	.02	7/8	2 1/2
LQ80-503Y	.05	1 7/16	3
LQ80-104Y	0.1	1 13/16	3
LQ80-254Y	.25	2 1/16	4

10000 VDCW

LQ100-202Y	.002	5/8	1 1/2
LQ100-502Y	.005	3/4	2
LQ100-103Y	.01	7/8	2 1/4
LQ100-203Y	.02	1	2 1/2
LQ100-503Y	.05	1 7/16	3 5/16
LQ100-104Y	0.1	2 1/16	3

12000 VDCW

LQ120-102Y	.001	5/8	1 7/8
LQ120-202Y	.002	3/4	2
LQ120-502Y	.005	7/8	2 1/4
LQ120-103Y	.01	1	2 1/2
LQ120-203Y	.02	1 7/16	3
LQ120-503Y	.05	1 13/16	3 5/16
LQ120-104Y	0.1	2 1/16	4

WP 4-86

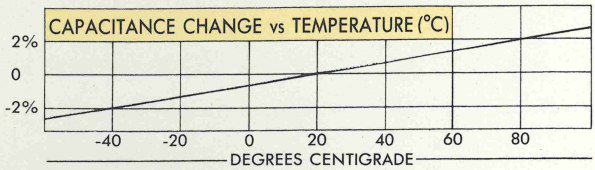
TYPE LJ

PAPER-MYLAR★ HIGH VOLTAGE CAPACITORS

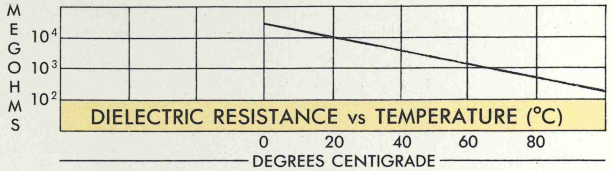
TYPE L J CAPACITORS are designed for high voltage application with plastic-paper dielectric capacitor elements. Connections are made to the extended foil sections with medium-heavy wiring allowing large discharge current. Consult factory for current and repetition rate limits. Applications include; power supply filters, discharge, pulse forming networks, bypass, and arc and spark suppression.

TEMPERATURE RANGE is minus 55° C to 65° C. No derating of voltage is necessary over this range.

CAPACITANCE TOLERANCE standard is ±10%, however type L J capacitors may be ordered with a ±5% tolerance.



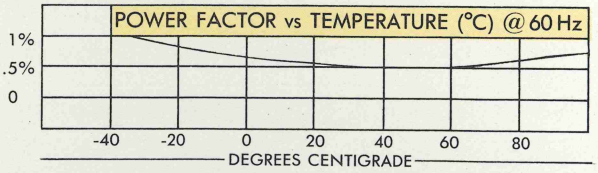
DIELECTRIC RESISTANCE (parallel resistance) is indicated in the graph below. This graph expresses limits with the nameplate voltage applied. Minimum acceptable resistance is 10,000 megohms per microfarad or 10,000 megohms. Whichever is less.



PEAK RIPPLE VOLTAGE plus the DC voltage must not exceed the nameplate voltage. As a general rule, the acceptable peak-to-peak ripple voltage (expressed as a percent of the nameplate voltage) for a given frequency is listed below. This is not valid at higher voltages and larger capacitance values. An inquiry should be sent to the factory regarding suitability of the application.

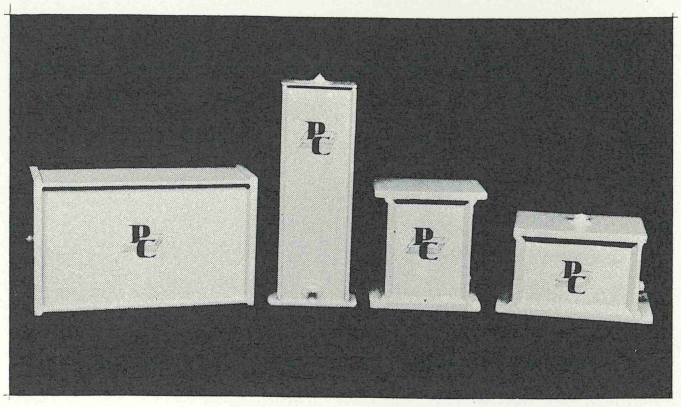
FREQUENCY	RIPPLE VOLTAGE (P-P)
60 Hz.	25%
120 Hz.	20%
400 Hz.	5%
1000 Hz.	3%

TEST VOLTAGE is 150% of nameplate voltage for two minutes in air at room temperature.



Other styles are available — see outline drawings. All are not suitable for all voltages. The styles shown are with a mounting foot. Dropping the suffix "F" indicates no foot supplied.

HOW TO ORDER Select the part number from the list and add suffix "-5", if 5% capacitance tolerance is required. For other styles consult factory.



TYPE L J CAPACITORS are oil-impregnated, oil-filled and hermetically sealed.

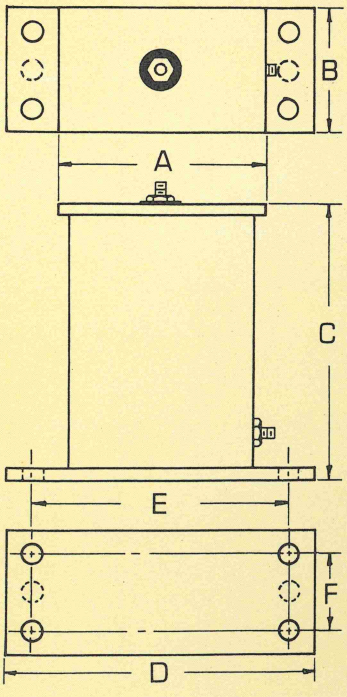
IMPREGNANT is a highly refined/purified and inhibited mineral oil with a flash point greater than 145°C when measured per method 110.3.4 specification V V-L-791.

DIELECTRIC is a combination of polyester film and Kraft capacitor tissue. Aluminum foils constitute the plates and the capacitor sections have extended foils insuring low I^2R losses and low inductance.

CASE is fabricated paper-phenolic with flexible side walls, permitting the case to be completely filled with the impregnant. This feature provides expansion and contraction of the oil over the temperature range.

TERMINALS on type L J suffix B (for styles B) are ¼-20 brass screws. Other size terminals or threaded inserts may be supplied on special order.

MOUNTING FOOT has holes for ¼-20 screw — small bases have 2 holes and larger base sizes have 4 holes.



STANDARD CONTAINER SIZES

A - 2 3/4	3 3/4	4 3/4	3 3/4
B - 1 3/4	1 3/4	1 3/4	2 3/4
D - 4	5	6	5
E - 3 1/4	4 1/4	5 1/4	4 1/4
F - *	*	*	*
A - 4 3/4	4 3/4	5 3/4	6 3/4
B - 2 3/4	3 3/4	3 3/4	3 3/4
D - 6	6	7	8
E - 5 1/4	5 1/4	6 1/4	7 1/4
F - *	2 1/4	2 1/4	2 1/4
A - 6 3/4	6 3/4	8 3/4	10 3/4
B - 4 3/4	5 3/4	5 3/4	5 3/4
D - 8	8	10	12
E - 7 1/4	7 1/4	9 1/4	11 1/4
F - 3 1/4	4 1/4	4 1/4	4 1/4
A - 10 3/4	10 3/4		
B - 6 3/4	7 3/4		
D - 12	12		
E - 11 1/4	11 1/4		
F - 4 1/4	4 1/4		

*2-HOLE BRACKET

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

*DUPONT POLYESTER FILM

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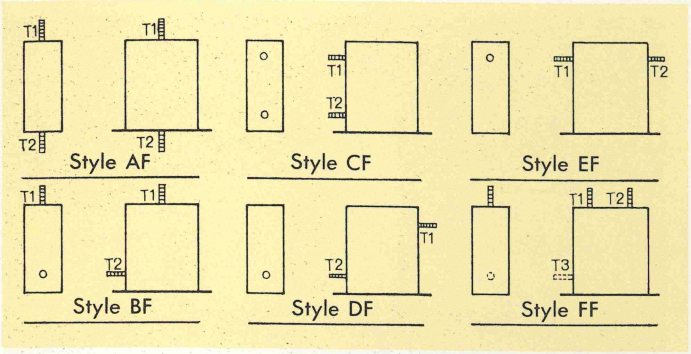
TYPE LJ

PAPER-MYLAR★ HIGH VOLTAGE CAPACITORS



30 KVDCW

PART NUMBER	CAP. MFD.	A	B	C	D
LJ300-103	.01	2 3/4	1 3/4	6	4
LJ300-203	.02	3 3/4	1 3/4	6	5
LJ300-303	.03	4 3/4	1 3/4	6	6
LJ300-503	.05	3 3/4	2 3/4	6 1/2	5
LJ300-603	.06	4 3/4	2 3/4	6 5/8	6
LJ300-104	.10	4 3/4	3 3/4	6	6
LJ300-124	.12	5 3/4	3 3/4	6	7
LJ300-154	.15	6 3/4	3 3/4	6	8
LJ300-204	.20	6 3/4	4 3/4	6	8
LJ300-254	.25	6 3/4	4 3/4	6 1/4	8
LJ300-304	.30	6 3/4	5 3/4	6	8
LJ300-504	.50	10 3/4	5 3/4	6	12

40 KVDCW

LJ400-103	.01	3 3/4	1 3/4	7	5
LJ400-203	.02	4 3/4	1 3/4	7	6
LJ400-303	.03	3 3/4	2 3/4	7	5
LJ400-503	.05	4 3/4	2 3/4	7	6
LJ400-603	.06	4 3/4	3 3/4	7	6
LJ400-104	.10	5 3/4	3 3/4	7	7
LJ400-124	.12	6 3/4	3 3/4	7	8
LJ400-154	.15	6 3/4	4 3/4	7	8
LJ400-204	.20	6 3/4	4 3/4	7	8
LJ400-254	.25	8 3/4	5 3/4	7 1/4	10
LJ400-304	.30	8 3/4	5 3/4	7 1/4	10

50 KVDCW

LJ500-502	.005	2 3/4	1 3/4	8	4
LJ500-103	.01	3 3/4	1 3/4	8	5
LJ500-203	.02	4 3/4	1 3/4	8	6
LJ500-303	.03	3 3/4	2 3/4	9	5
LJ500-503	.05	4 3/4	2 3/4	9 1/2	6
LJ500-603	.06	4 3/4	3 3/4	8	6
LJ500-104	.10	6 3/4	3 3/4	8 1/4	8
LJ500-124	.12	6 3/4	4 3/4	9	8
LJ500-154	.15	6 3/4	4 3/4	9	8
LJ500-204	.20	8 3/4	5 3/4	9	10
LJ500-254	.25	8 3/4	5 3/4	9	10
LJ300-304	.30	10 3/4	5 3/4	9	12

60 KVDCW

LJ600-502	.005	2 3/4	1 3/4	9	4
LJ600-103	.01	3 3/4	1 3/4	9	5
LJ600-203	.02	3 3/4	2 3/4	9	5
LJ600-503	.05	4 3/4	3 3/4	10	6
LJ600-603	.06	5 3/4	3 3/4	9	7
LJ600-104	.10	6 3/4	4 3/4	9	8
LJ600-124	.12	6 3/4	4 3/4	10	8
LJ600-154	.15	6 3/4	5 3/4	10	8
LJ600-204	.20	8 3/4	5 3/4	10	10
LJ600-154	.25	10 3/4	5 3/4	10	12
LJ600-304	.30	10 3/4	6 3/4	10 1/4	12

80 KVDCW

LJ800-502	.005	3 3/4	1 3/4	11	5
LJ800-103	.01	4 3/4	1 3/4	11	6
LJ800-203	.02	3 3/4	2 3/4	11	5
LJ800-303	.03	4 3/4	3 3/4	12	6
LJ800-503	.05	5 3/4	3 3/4	12	7
LJ800-603	.06	6 3/4	3 3/4	12	8
LJ800-104	.10	6 3/4	5 3/4	11	8
LJ800-124	.12	8 3/4	5 3/4	11	10
LJ800-154	.15	8 3/4	5 3/4	12	10
LJ800-204	.20	10 3/4	5 3/4	12 1/2	12
LJ800-254	.25	10 3/4	7 3/4	12	12

100 KVDCW

LJ1000-202	.002	2 3/4	1 3/4	14	4
LJ1000-302	.003	2 3/4	1 3/4	14	4
LJ1000-502	.005	3 3/4	1 3/4	14	5
LJ1000-103	.01	4 3/4	1 3/4	14	6
LJ1000-203	.02	4 3/4	2 3/4	15	6
LJ1000-303	.03	4 3/4	3 3/4	15	6
LJ1000-503	.05	6 3/4	3 3/4	15	8
LJ1000-603	.06	6 3/4	4 3/4	14	8
LJ1000-104	.10	8 3/4	5 3/4	14	10
LJ1000-124	.12	8 3/4	5 3/4	15	10
LJ1000-154	.15	10 3/4	5 3/4	15	12
LJ1000-204	.20	10 3/4	7 3/4	15	12
LJ1000-254	.25	10 3/4	7 3/4	18	12

120 KVDCW

LJ1200-202	.002	2 3/4	1 3/4	18	4
LJ1200-302	.003	2 3/4	1 3/4	18	4
LJ1200-502	.005	3 3/4	1 3/4	18	5
LJ1200-602	.006	3 3/4	1 3/4	18 1/2	5
LJ1200-103	.01	3 3/4	2 3/4	18	5
LJ1200-203	.02	4 3/4	2 3/4	18	6
LJ1200-303	.03	5 3/4	3 3/4	18	7
LJ1200-503	.05	6 3/4	3 3/4	19 1/2	8
LJ1200-603	.06	6 3/4	4 3/4	18 1/2	8
LJ1200-104	.10	8 3/4	5 3/4	18	10
LJ1200-124	.12	10 3/4	5 3/4	18	12
LJ1200-154	.15	10 3/4	6 3/4	18	12
LJ1200-204	.20	10 3/4	7 3/4	20	12

150 KVDCW

LJ1500-202	.002	2 3/4	1 3/4	21	4
LJ1500-502	.005	3 3/4	1 3/4	22	5
LJ1500-103	.01	3 3/4	2 3/4	23 1/4	5
LJ1500-203	.02	4 3/4	3 3/4	21	6
LJ1500-303	.03	6 3/4	3 3/4	21	8
LJ1500-503	.05	6 3/4	5 3/4	21	8
LJ1500-104	.10	10 3/4	5 3/4	21	12
LJ1500-124	.12	10 3/4	6 3/4	22	12
LJ1500-154	.15	10 3/4	7 3/4	23	12

200 KVDCW

LJ2000-102	.001	2 3/4	1 3/4	26	4
LJ2000-202	.002	3 3/4	1 3/4	26	5
LJ2000-302	.003	3 3/4	1 3/4	26	5
LJ2000-502	.005	4 3/4	1 3/4	26	6
LJ2000-103	.01	4 3/4	2 3/4	27	6
LJ2000-203	.02	5 3/4	3 3/4	27	7
LJ2000-303	.03	6 3/4	4 3/4	26	8
LJ2000-503	.05	8 3/4	5 3/4	26	10
LJ2000-603	.06	8 3/4	5 3/4	27 1/2	10
LJ2000-104	.10	10 3/4	7 3/4	27	12

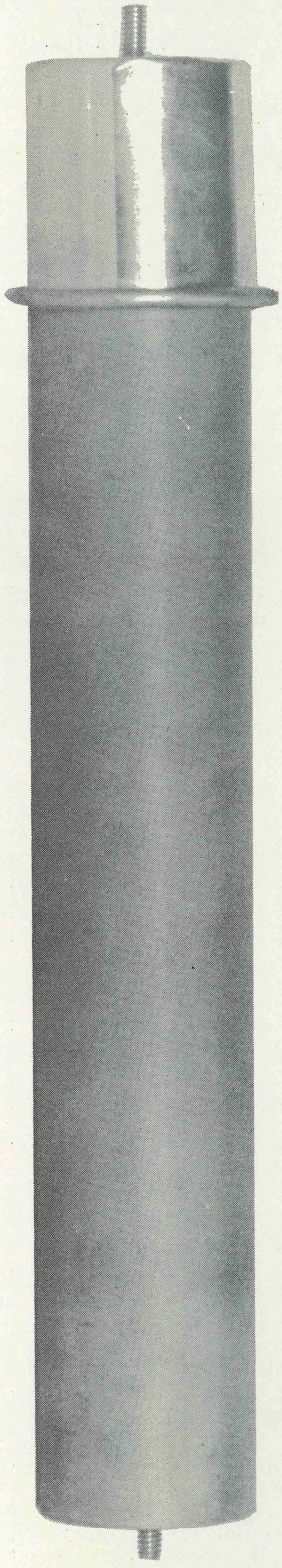
*DUPONT POLYESTER FILM

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

WP 4-86

TYPE OT

PLASTIC FILM DIELECTRIC HIGH VOLTAGE FILTER

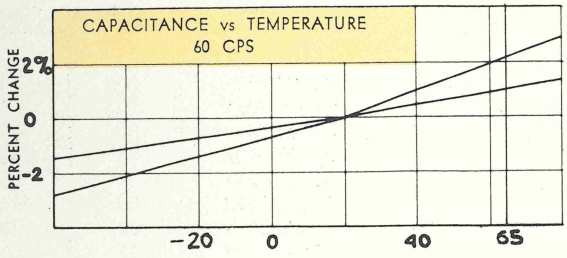


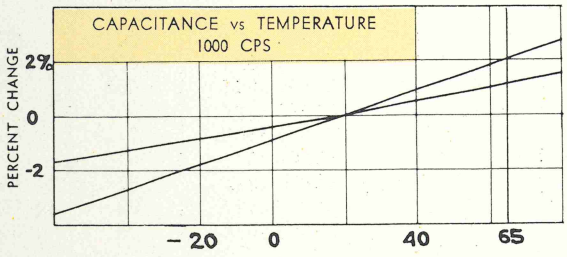
Type OT capacitors are designed for long life at high voltage in the medium temperature range. Type OT capacitors are the smallest and most economical capacitors available for high voltage DC filtering.

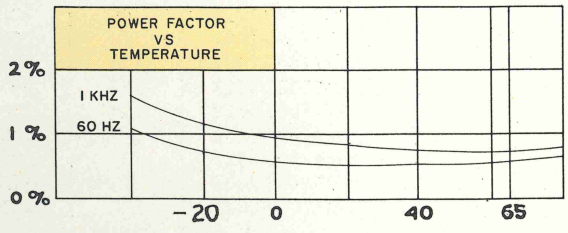
CORONA CAP is provided for the protection of the capacitor, permitting safe operation in close quarters. The corona cap is aluminum. Additional caps are available at a nominal charge.

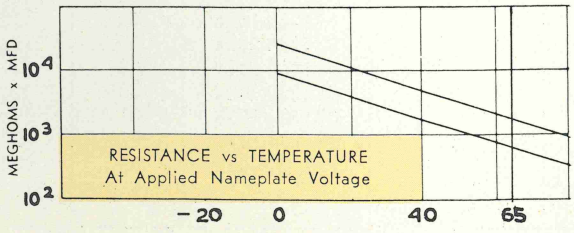
MOUNTING must be mounted vertically, corona cap at top.

IMPREGNANT is a highly purified mineral oil with an ageing inhibitor.









CASE is hermetically sealed and designed for operation under oil. Many of the lower voltage units may be operated in air. Many capacitance values at stated voltages are available in two physical sizes, providing the design engineer flexibility in placement of parts and circuit wiring.

TERMINALS and mounting stud are axial 3/8-16x1" long.

CAPACITANCE TOLERANCE normally supplied is ±10%.

TEST VOLTAGE. 150% rated voltage under oil for one minute at room temperature (vertically mounted).

TEMPERATURE RANGE. Type OT capacitors will give long life in the temperature range of −40°C to 65°C with the rated voltage applied.

TEMPERATURE COEFFICIENT: Capacitance change over the temperature range is indicated by the limiting curves in the graph "T vs. C".

LIFE. Type OT capacitors are designed for continuous operation at 65°C for 10,000 hours.

POWER FACTOR is variable and is a function of temperature and frequency. Refer to graph, "Power Factor vs. Temperature".

RIPPLE: The peak ripple voltage plus the DC voltage should not exceed the nameplate voltage. Acceptable peak to peak ripple voltage in percent of nameplate voltage follows:

Frequency Hz	Peak to Peak Ripple Voltage %
60	25
120	20
400	5
1000	3

DIELECTRIC RESISTANCE is given in the "R vs. T" graph. Measurement can be made with nameplate voltage. Capacitance values under 1 mfd. need not exceed two times the graph value per mfd. at any temperature.

HOW TO ORDER. Check listing for capacitance and voltage. Note that more than one container size is often available. Standard capacitance tolerance is ±10%.

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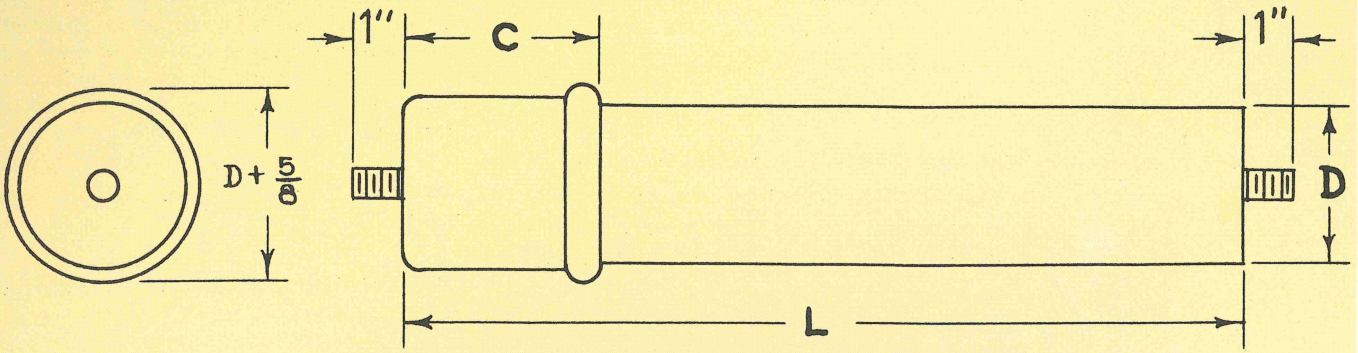
TYPE OT

PLASTIC FILM DIELECTRIC HIGH VOLTAGE FILTER

C = 2" FOR 2¾ OR 3¾ DIAMETER
1¾" FOR 2⅛ OR 1½



PART NUMBER	CAP MFD.	KILO-VOLTS	D −0 +1/8	L ±1/8
OT100-104X	.1	10	2 1/8	4 1/2
OT100-254X	.25	10	2 3/4	5
OT100-504X	.5	10	3 3/4	6
OT200-203X	.02	20	1 1/2	7
OT200-503X	.05	20	2 1/8	7
OT200-104X	.1	20	2 3/4	7 1/2
OT200-254X	.25	20	2 3/4	13
OT200-254Y	.25	20	3 3/4	9
OT200-504X	.5	20	3 3/4	12
OT300-103X	.01	30	1 1/2	8
OT300-203X	.02	30	2 1/8	8
OT300-203Y	.02	30	1 1/2	11
OT300-503X	.05	30	2 3/4	9
OT300-104X	0.1	30	2 3/4	13
OT300-104Y	0.1	30	3 3/4	9 1/2
OT300-254X	.25	30	3 3/4	15
OT400-502X	.005	40	1 1/2	9
OT400-103X	.01	40	1 1/2	11 1/2
OT400-203X	.02	40	1 1/2	17
OT400-203Y	.02	40	2 1/8	11
OT400-503X	.05	40	2 1/8	16
OT400-503Y	.05	40	2 3/4	13
OT400-104X	0.1	40	3 3/4	13
OT500-202X	.002	50	1 1/2	8
OT500-502X	.005	50	1 1/2	11 1/2
OT500-103X	.01	50	1 1/2	16
OT500-103Y	.01	50	2 1/8	11
OT500-203X	.02	50	2 3/4	11 1/2
OT500-503X	.05	50	2 3/4	17
OT500-503Y	.05	50	3 3/4	11 1/2
OT500-104X	0.1	50	3 3/4	18

PART NUMBER	CAP MFD.	KILO-VOLTS	D −0 +1/8	L ±1/8
OT600-202X	.002	60	1 1/2	10
OT600-502X	.005	60	1 1/2	14
OT600-502Y	.005	60	2 1/8	11
OT600-103X	.01	60	2 1/8	14
OT600-103Y	.01	60	2 3/4	11
OT600-203X	.02	60	2 3/4	14
OT600-203Y	.02	60	3 3/4	10
OT600-503X	.05	60	3 3/4	16
OT600-104X	0.1	60	3 3/4	25
OT800-102X	.001	80	1 1/2	13
OT800-202X	.002	80	1 1/2	15
OT800-502X	.005	80	1 1/2	21
OT800-502Y	.005	80	2 1/8	15
OT800-103X	.01	80	2 1/8	20
OT800-103Y	.01	80	2 3/4	15
OT800-203X	.02	80	2 3/4	20
OT800-203Y	.02	80	3 3/4	15
OT800-503X	.05	80	3 3/4	27 1/2
OT1000-501X	.0005	100	1 1/2	15
OT1000-102X	.001	100	1 1/2	15
OT1000-202X	.002	100	1 1/2	20
OT1000-202Y	.002	100	2 1/8	15
OT1000-502X	.005	100	2 1/8	20
OT1000-502Y	.005	100	2 3/4	15
OT1000-103X	.01	100	2 3/4	20 1/2
OT1000-103Y	.01	100	3 3/4	15
OT1000-203X	.02	100	3 3/4	18
OT1000-303X	.03	100	3 3/4	25
OT1200-501X	.0005	120	1 1/2	18
OT1200-102X	.001	120	1 1/2	18
OT1200-202X	.002	120	1 1/2	24
OT1200-202Y	.002	120	2 1/8	18
OT1200-502X	.005	120	2 3/4	21
OT1200-103X	.01	120	2 3/4	25
OT1200-103Y	.01	120	3 3/4	20
OT1200-203X	.02	120	3 3/4	25

TYPE LK

MYLAR★ PAPER FILTER CAPACITORS

TYPE LK CAPACITORS offer unusually good electrical characteristics, coupled with very small size. They are designed for twice the life of MIL-C-25C capacitors (see life characteristics) and will meet or exceed the requirements of characteristic E.

TYPE LK CAPACITORS are specifically designed for filter, bypass and coupling applications in the low audio frequency range. The CP70 style container and internal construction permit operation in any position. Glazed steatite bushings are used, and in the voltage ranges of 2000 and greater, steatite is the electrical insulation in the terminal assembly. The threaded stud terminal is supplied with nut and solder lug. The whole assembly is hermetically sealed.

APPLICATIONS While Type LK capacitors are designed primarily for filter, bypass and coupling applications in the low audio frequency range, they may be used advantageously in the following applications.

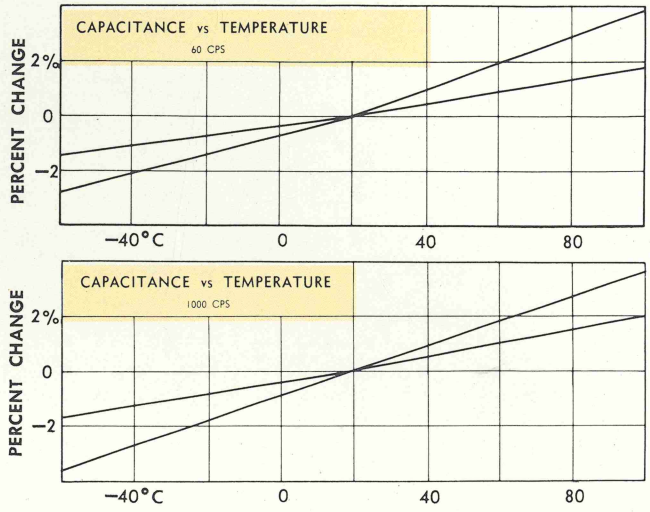
Audio coupling	Tuned filters
Pulse forming networks	Energy Storage
Oscillator circuits	Power factor correction
Arc and spark suppression	Integrating circuits
RF bypass	Low and high pass filters

Consult **Plastic Capacitors, Inc.** engineering staff for your specific application.

HOW TO ORDER. Check listing for capacitance and voltage. Note that more than one container size is often available. Standard capacitance tolerance is ±10%; for closer tolerances use basic part number assigned and add a dash (—) plus the tolerance required i.e., 5 or 2 for 5% or 2%.

TEMPERATURE RANGE is minus 55 to 105°C. Rated nameplate voltage is from minus 55°C to 85°C.

TEMPERATURE COEFFICIENT: Capacitance change over the temperature range is indicated by the limiting curves in the graph "T vs. C".



CAPACITANCE TOLERANCE standard is 10%. Also available are tolerances of 5% and 2%. Nominal value of capacitance of 1 mfd. or less is measured with 1000 CPS applied to the bridge and 60 CPS for nominal values greater than 1 mfd.

LIFE CHARACTERISTICS: Definition of Groups I, II and III are included in life test Paragraph, Page A10.

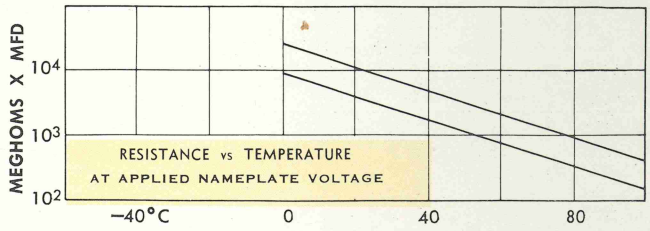
Group I capacitors are rated for 2500 hours life at 85°C and 17,000 hours life at 50°C. For 10,000 hours life at 85°C derate to 75% nameplate voltage rating. For 2500 hours life at 105°C derate to 85% nameplate voltage rating.

★ DUPONT POLYESTER FILM

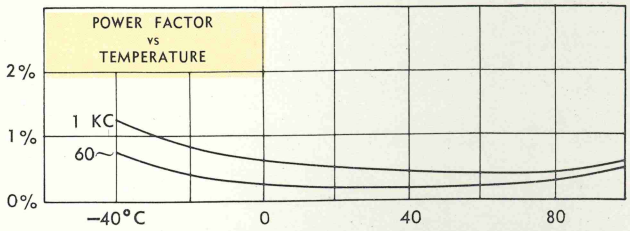
Group II capacitors are rated for 1250 hours life at 85°C, 8500 hours life at 50°C. For 2500 hours life at 85°C derate to 85% nameplate voltage rating. For 10,000 hours life at 85°C derate to 65% nameplate voltage rating. For 2500 hours life at 105°C derate to 70% nameplate voltage rating. (See **life test** for capacitor groupings.)

Group III capacitors are rated for 500 hours life at 85°C, and 3500 hours life at 50°C. For 2500 hours life at 85°C derate to 70% nameplate voltage rating. For 10,000 hours life at 85°C derate to 55% nameplate voltage rating. For 10,000 hours life at 50°C derate to 80% nameplate voltage rating.

DIELECTRIC RESISTANCE (parallel resistance) is indicated by the curve R vs T. This curve expresses limits with *nameplate voltage* applied and 2 minute electrification time. Limitations 10^4 megohms x mfd. or 10^4 megohms whichever is less at room temperature.



POWER FACTOR is variable and is a function of temperature and frequency. Refer to graph, "Power Factor vs. Temperature".



RIPPLE: The peak ripple voltage plus the DC voltage should not exceed the nameplate voltage. Acceptable peak to peak ripple voltage in percent of nameplate voltage follows:

Frequency Hz	Peak to Peak Ripple Voltage %
60	25
120	20
400	5
1000	3

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TYPE LK

MYLAR★ PAPER FILTER CAPACITORS

PHYSICAL DESCRIPTION

TYPE LK capacitors are oil-impregnated, oil-filled and are hermetically sealed.

CASE is terne-plate or hot-tinned steel.

FINISH consists of a prime coat and finish coat of synthetic enamel, grey in color.

TERMINALS are mounted on glazed steatite bushings. Neoprene gaskets or solder seals are used to effect the hermetic seal and a nut and solder lug are provided as part of the terminal assembly. Steatite is used as the insulation between the terminal post and the case for all voltages greater than 1000. All terminal bushings are oil-filled.

DIELECTRIC is a combination of polyester resin film and the finest grade Kraft capacitor tissue.

IMPREGNANT is a highly refined, purified and inhibited mineral oil with a flash point greater than 145°C when measured per method 110.3.4 of Specification VV-L-791.

BRACKETS: Footed brackets are supplied at no charge. A nominal charge is made for spade bolt type brackets. These may be ordered only with capacitors.

MOUNTING POSITION: All type LK capacitors will operate satisfactorily mounted in any position.

TEST VOLTAGE: Terminal to terminal for capacitors rated through 20 KV, one minute at room temperature with 200% rated voltage applied. For rated voltages greater than 20 KV, 150% rated voltage for two minutes at room temperature.

Terminal to case, same as above, but plus 1000 volts.

Test voltage shall be applied and discharged through a resistance of at least one ohm per rated volt but need not be more than 5000 ohms.

FLASHOVER: The capacitor terminals will withstand 125% rated nameplate voltage without flashover at a pressure of 3.4 inches of mercury, equivalent to 50,000 feet altitude. This applies only to nameplate voltages of 5000 or less.

Rated nameplate voltage of 6000 or more will withstand 125% rated nameplate voltage at a pressure of 20 inches of mercury, equivalent to 10,000 feet altitude.

ENVIRONMENTAL TESTING

LIFE TEST will be conducted at 85°C for 500 hours. One failure of 24 so tested will be permitted. Voltage applied will be according to the following table:

I	0-50 watt seconds—Less than 12 mfd., 140% rated voltage
II	12 mfd. or more—120 % rated voltage
I	51-200 watt seconds—4 mfd. or less, 140% rated voltage
II	5 mfd. or more, 120% voltage
II	201 or over watt seconds—2 mfd. or less, 120% rated voltage
III	Over 2 mfd., 100% rated voltage

TEMPERATURE AND IMMERSION cycling shall be conducted per requirements of MIL-C-25C.

MOISTURE RESISTANCE shall be conducted per requirements of MIL-C-25C.

CORROSION OR SALT SPRAY test shall be conducted according to the 100 hour requirements of MIL-QQ-M-151A.

VIBRATION AND SHOCK tests may be performed per MIL-C-25C or per MIL-E-5272 (any method).

HOW TO ORDER: Check listing for capacitance and voltage. Note that more than one container size is often available. Use basic part number assigned and add a dash (—) plus the capacitance tolerance, 5 or 2 for 5% or 2% tolerance as required. Standard tolerance (10%) not shown on capacitors.

600 VDCW

PART NUMBER	CAP. MFD.	A	B	C	D	E
LK6-104	.1	1 3/4	1	2 1/8	13/16	3/4
LK6-254	.25	1 3/4	1	2 1/8		
LK6-504	.5	1 3/4	1	2 1/8		
LK6-105	1.0	1 3/4	1	2 1/8		
LK6-205	2	1 3/4	1	3 1/4		
LK6-405	4	1 3/4	1	5 1/4		
LK6-405Y	4	2 1/2	1 3/16	3 1/4	1 1/8	
LK6-605	6	2 1/2	1 3/16	4 1/2		
LK6-805	8	2 1/2	1 3/16	5 1/2		
LK6-805Y	8	3 3/4	1 1/4	4	2	
LK6-106	10	3 3/4	1 1/4	4 1/2		
LK6-106Y	10	3 3/4	1 3/4	3 1/2		
LK6-126	12	3 3/4	1 1/4	5		
LK6-126Y	12	3 3/4	1 3/4	3 3/4		
LK6-156	15	3 3/4	1 1/4	6		
LK6-156Y	15	3 3/4	1 3/4	4 1/2		
LK6-156Z	15	3 3/4	2 1/4	3 3/4		
LK6-206	20	3 3/4	1 3/4	5 1/2		
LK6-206Y	20	3 3/4	2 1/4	4 1/2		
LK6-256	25	3 3/4	2 1/4	5 3/4		
LK6-256Y	25	3 3/4	3 3/16	4		
LK6-306	30	3 3/4	2 1/4	6 1/4		
LK6-306Y	30	3 3/4	3 3/16	4 3/4		
LK6-306Z	30	4 9/16	3 3/4	3 1/2		

1000 VDCW

LK10-104	.1	1 3/4	1	2 1/8	13/16	3/4
LK10-254	.25	1 3/4	1	2 1/8		
LK10-504	.5	1 3/4	1	2 1/8		
LK10-105	1.0	1 3/4	1	2 1/8		
LK10-205	2	1 3/4	1	3 1/2		
LK10-405	4	1 3/4	1	5 3/4		

★ DUPONT POLYESTER FILM

1000 VDCW (Cont'd)

PART NUMBER	CAP. MFD.	A	B	C	D	E
LK10-405Y	4	2 1/2	1 3/16	3 3/4	1 1/8	3/4
LK10-605	6	2 1/2	1 3/16	5	1 1/8	
LK10-605Y	6	3 3/4	1 1/4	3 1/2	2	
LK10-805	8	2 1/2	1 3/16	6 1/4	1 1/8	
LK10-805Y	8	3 3/4	1 1/4	4 1/4	2	
LK10-106	10	3 3/4	1 1/4	5		
LK10-106Y	10	3 3/4	1 3/4	3 3/4		
LK10-126	12	3 3/4	1 1/4	5 3/4		
LK10-126Y	12	3 3/4	1 3/4	4 1/4		
LK10-156	15	3 3/4	1 3/4	5 1/4		
LK10-156Y	15	3 3/4	2 1/4	4		
LK10-206	20	3 3/4	1 3/4	6 1/4		
LK10-206Y	20	3 3/4	2 1/4	5 1/4		
LK10-206Z	20	3 3/4	3 3/16	4		
LK10-256	25	3 3/4	2 1/4	6 1/4		
LK10-256Y	25	3 3/4	3 3/16	4 3/4		
LK10-306	30	3 3/4	3 3/16	5 1/4		
LK10-306Y	30	4 9/16	3 3/4	4		

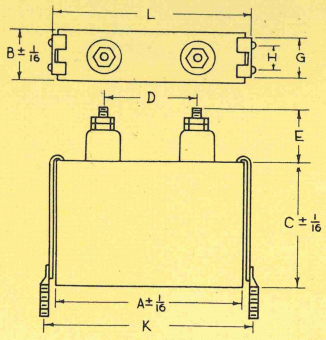
1500 VDCW

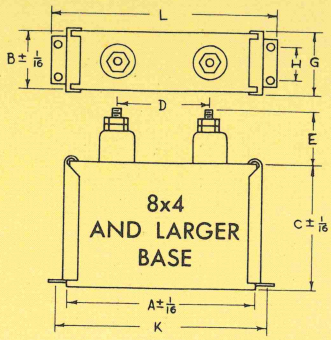
LK15-205Y	2	1 3/4	1	4 1/2	13/16	1 1/8
LK15-405Y	4	2 1/2	1 3/16	4 3/4	13/16	
LK15-605Y	6	2 1/2	1 3/16	6 1/2	1 1/8	
LK15-805Y	8	2 1/2	1 3/16	8 1/4	1 1/8	
LK15-106Y	10	3 3/4	1 1/4	6 3/4	1 1/8	
LK15-126Y	12	3 3/4	1 1/4	7 1/2	2	
LK15-156Y	15	3 3/4	1 3/4	6 3/4		
LK15-206Y	20	3 3/4	1 3/4	8 1/2		
LK15-256Y	25	3 3/4	2 1/4	8 3/4		
LK15-306Y	30	3 3/4	3 3/16	7 1/4		
LK15-406Y	40	4 9/16	3 3/4	6 3/4		
LK15-506Y	50	4 9/16	3 3/4	8 1/4		

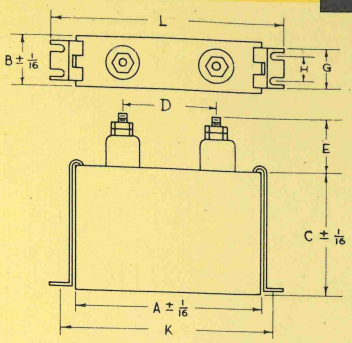
WP 4-86

TYPE LK

MYLAR★ PAPER FILTER CAPACITORS







2000 VDCW

PART NUMBER	CAP. MFD.	A	B	C	D	E
LK20-104	.1	1 3/4	1	2 1/8	13/16	1 1/8
LK20-254	.25	1 3/4	1	2 1/8		
LK20-504	.5	1 3/4	1	2 1/8		
LK20-105	1.0	1 3/4	1	3 1/4		
LK20-205	2	2 1/2	1 3/16	3 1/2	1 1/8	
LK20-205Y	2	1 3/4	1	5	13/16	
LK20-405	4	2 1/2	1 3/16	5 1/2	1 1/8	
LK20-405Y	4	3 3/4	1 1/4	3 3/4		
LK20-605	6	3 3/4	1 1/4	5		
LK20-605Y	6	3 3/4	1 3/4	3 3/4		
LK20-805	8	3 3/4	1 1/4	6 1/4		
LK20-805Y	8	3 3/4	1 3/4	4 1/2		
LK20-106	10	3 3/4	1 3/4	5 1/4		
LK20-106Y	10	3 3/4	2 1/4	4 1/2		
LK20-126	12	3 3/4	1 3/4	6 1/4		
LK20-126Y	12	3 3/4	2 1/4	5		
LK20-126Z	12	3 3/4	3 3/16	4	2	
LK20-156	15	3 3/4	2 1/4	6		
LK20-156Y	15	3 3/4	3 3/16	5		
LK20-156Z	15	4 9/16	3 3/4	3 3/4		
LK20-206	20	3 3/4	3 3/16	6		
LK20-206Y	20	4 9/16	3 3/4	4 1/4		
LK20-256	25	3 3/4	3 3/16	6 3/4		
LK20-306	30	4 9/16	3 3/4	5 3/4		
LK20-406	40	4 9/16	3 3/4	7 3/4		
LK20-506	50	4 9/16	3 3/4	9 1/4		

3000 VDCW

PART NUMBER	CAP. MFD.	A	B	C	D	E
LK30-104	.1	1 3/4	1	2 1/8	13/16	1 1/8
LK30-254	.25	1 3/4	1	2 1/2		
LK30-504	.5	1 3/4	1	3 1/4		
LK30-105	1.0	1 3/4	1	5 1/4		
LK30-105Y	1.0	2 1/2	1 3/16	3 1/2	1 1/8	
LK30-205	2	2 1/2	1 3/16	5 1/2	1 1/8	
LK30-205Y	2	3 3/4	1 1/4	3 3/4		
LK30-405	4	3 3/4	1 1/4	6 1/4		
LK30-405Y	4	3 3/4	1 3/4	4 3/4		
LK30-405Z	4	3 3/4	2 1/4	4		
LK30-605	6	3 3/4	1 3/4	6 1/4		
LK30-605Y	6	3 3/4	2 1/4	5 1/4		
LK30-605Z	6	3 3/4	3 3/16	4		
LK30-805	8	3 3/4	2 1/4	6 1/2		
LK30-805Y	8	3 3/4	3 3/16	5	2	
LK30-805Z	8	4 9/16	3 3/4	3 3/4		
LK30-106	10	3 3/4	3 3/16	5 3/4		
LK30-106Y	10	4 9/16	3 3/4	4 1/2		
LK30-126	12	3 3/4	3 3/16	6 3/4		
LK30-126Y	12	4 9/16	3 3/4	5		
LK30-156	15	4 9/16	3 3/4	6		
LK30-206Y	20	4 9/16	3 3/4	7		
LK30-256Y	25	4 9/16	3 3/4	10		
LK30-306Z	30	4 9/16	3 3/4	11 1/2		
LK30-406	40	7 3/8	5 5/8	9	3	
LK30-506	50	7 3/8	5 5/8	10 7/8	3	

4000 VDCW

PART NUMBER	CAP. MFD.	A	B	C	D	E
LK40-503	.05	1 3/4	1	2 1/8	13/16	1 1/8
LK40-104	.1	1 3/4	1	2 1/8		
LK40-254	.25	1 3/4	1	2 3/4		
LK40-504	.5	1 3/4	1	4		

★ DUPONT POLYESTER FILM

CASE BASE DIMENSIONS A	B	K FOOTED BRACKET	K SPADE BRACKET	L MAX	G MAX	H	J
1 3/4	1	2 1/2	2 1/16	3 1/16	25/32	*	.213
2 1/2	1 3/16	3 1/4	2 3/4	3 13/16	29/32	*	.213
3 3/4	1 1/4	4 7/16	4	5	29/32	*	.213
3 3/4	1 3/4	4 7/16	4	5	1 1/2	5/8	.213
3 3/4	2 1/4	4 11/16	4	5 1/4	2	1 1/4	.213
3 3/4	3 3/16	4 11/16	4	5 1/4	2 7/8	2	.213
4 9/16	3 3/4	4 11/16	4	5 1/4	4 5/16	3 3/8	.213
6	4 11/16	5 11/16	Not	6 1/4	4 13/16	4 1/4	.213
7 3/8	5 5/8	6 1/2	Avail.	7 1/8	6 1/16	5 1/2	.213
8	4	10 1/8		11 1/4	4 9/32	2 1/8	.437
13 1/2	4 1/8	15 5/8		16 3/4	4 13/32	2 1/8	.437
13 1/2	5 1/8	15 5/8		16 3/4	5 13/32	3 1/8	.437

***Single slot or lug centered—J Hole or slot diameter on footed brackets.**
Brackets for base sizes 4 9/16x3 3/4, 6x4 11/16, 7 3/8x5 5/8 are mounted on the side parallel to the centerline drawn through the terminals.

4000 VDCW (Cont'd)

PART NUMBER	CAP. MFD.	A	B	C	D	E
LK40-105	1.0	2 1/2	1 3/16	4	1 1/8	1 1/8
LK40-205	2	2 1/2	1 3/16	6 3/4	1 1/8	
LK40-205Y	2	3 3/4	1 3/4	3 3/4		
LK40-405	4	3 3/4	1 3/4	6		
LK40-405Y	4	3 3/4	2 1/4	4 3/4		
LK40-605	6	3 3/4	2 1/4	6 1/2		
LK40-605Y	6	3 3/4	3 3/16	5		
LK40-605Z	6	4 9/16	3 3/4	3 3/4		
LK40-805	8	3 3/4	3 3/16	6	2	
LK40-805Y	8	4 9/16	3 3/4	4 3/4		
LK40-106	10	4 9/16	3 3/4	5 1/2		
LK40-126	12	4 9/16	3 3/4	6 1/2		
LK40-156	15	4 9/16	3 3/4	8 1/2		
LK40-206Z	20	4 9/16	3 3/4	9		
LK40-256Y	25	4 9/16	3 3/4	11		
LK40-306Y	30	6		4 11/16	9 1/4	
LK40-406	40	7 3/8	5 5/8	8 1/2	3	
LK40-506	50	7 3/8	5 5/8	11		

5000 VDCW

PART NUMBER	CAP. MFD.	A	B	C	D	E
LK50-104	.1	1 3/4	1	2 1/8	13/16	1 1/8
LK50-254	.25	1 3/4	1	3		
LK50-504	.5	1 3/4	1	4 3/4		
LK50-504Y	.5	2 1/2	1 3/16	3 1/4	1 1/8	
LK50-105	1.0	2 1/2	1 3/16	5	1 1/8	
LK50-105Y	1.0	3 3/4	1 1/4	3 3/4		
LK50-205	2	3 3/4	1 1/4	6		
LK50-205Y	2	3 3/4	1 3/4	4 1/2		
LK50-205Z	2	3 3/4	2 1/4	3 3/4		
LK50-405	4	3 3/4	2 1/4	6 1/4	2	
LK50-405Y	4	3 3/4	3 3/16	4 3/4		
LK50-405Z	4	4 9/16	3 3/4	3 3/4		
LK50-605	6	3 3/4	3 3/16	6 1/2		
LK50-605Y	6	4 9/16	3 3/4	4 3/4		
LK50-805	8	4 9/16	3 3/4	6 1/4		
LK50-106Y	10	4 9/16	3 3/4	7 1/2		
LK50-126Y	12	4 9/16	3 3/4	8		
LK50-156Y	15	4 9/16	3 3/4	9 1/4		
LK50-206Y	20	7 3/8	5 5/8	5 3/4		
LK50-206Z	20	6		4 11/16	8 1/2	
LK50-256Y	25	6		4 11/16	10	3
LK50-306Y	30	7 3/8	5 5/8	8		
LK50-406Y	40	7 3/8	5 5/8	11		

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TYPE LK

MYLAR★ PAPER FILTER CAPACITORS

6000 VDCW

PART NUMBER	CAP. MFD.	A	B	C	D	E
LK60-104	.1	3 3/4	1 1/4	2 1/4		
LK60-254	.25	3 3/4	1 1/4	2 1/2		
LK60-504	.5	3 3/4	1 1/4	3 3/4		
LK60-105	1.0	3 3/4	1 1/4	5 1/2		
LK60-105Y	1.0	3 3/4	1 3/4	4 1/2		
LK60-205	2	3 3/4	2 1/4	6 1/4	2	
LK60-205Y	2	3 3/4	3 3/16	4 3/4		
LK60-405	4	4 9/16	3 3/4	6		1 7/16
LK60-605	6	4 9/16	3 3/4	8 1/4		
LK60-805	8	4 9/16	3 3/4	10 1/4		
LK60-106Y	10	6	4 11/16	8 3/4	3	
LK60-126Y	12	6	4 11/16	9 3/4	3	
LK60-156Y	15	6	4 11/16	12	3	
LK60-206Y	20	7 3/8	5 5/8	10 1/4	3	
LK60-306Y	30	13 1/2	5 1/8	11 7/8	6 3/4	2 1/8
LK60-406	40	13 1/2	5 1/8	12 7/8	6 3/4	2 1/8
LK60-506	50	13 1/2	7 1/8	11 7/8	6 3/4	2 1/8

8000 VDCW

LK80-104Y	.1	2 1/2	1 3/16	3	1 1/8	
LK80-104	.1	3 3/4	1 1/4	2 1/2	2	
LK80-254Y	.25	2 1/2	1 3/16	5 1/4	1 1/8	
LK80-254	.25	3 3/4	1 1/4	3 3/4		
LK80-504	.5	3 3/4	1 1/4	5 3/4		
LK80-504Y	.5	3 3/4	1 3/4	4 1/4		
LK80-105	1.0	3 3/4	1 3/4	7		
LK80-105Y	1.0	3 3/4	2 1/4	5 3/4	2	
LK80-105Z	1.0	3 3/4	3 3/16	4 1/2		
LK80-205	2	3 3/4	3 3/16	7		2 1/8
LK80-205Y	2	4 9/16	3 3/4	5 1/4		
LK80-405Y	4	4 9/16	3 3/4	8 1/2		
LK80-605Y	6	6	4 11/16	8 1/4	3	
LK80-805Y	8	6	4 11/16	10	3	
LK80-106Y	10	7 3/8	5 5/8	9	3	
LK80-126Y	12	7 3/8	5 5/8	10 1/2	3	
LK80-156Y	15	13 1/2	4 1/8	11	6 3/4	
LK80-206Y	20	13 1/2	5 1/8	11 7/8	6 3/4	
LK80-256	25	13 1/2	6 1/8	11 7/8	6 3/4	
LK80-306	30	13 1/2	7 1/8	11 7/8	6 3/4	

10 KVDCW

LK100-104	.1	3 3/4	1 3/4	3 1/4		
LK100-254	.25	3 3/4	1 3/4	3 3/4		
LK100-254Y	.25	3 3/4	2 1/4	3 1/4		
LK100-504	.5	3 3/4	1 3/4	5 3/4		
LK100-504Y	.5	3 3/4	2 1/4	4 1/2		
LK100-504Z	.5	3 3/4	3 3/16	3 3/4	2	
LK100-105	1.0	3 3/4	2 1/4	7 1/4		
LK100-105Y	1.0	3 3/4	3 3/16	5 1/4		
LK100-105Z	1.0	4 9/16	3 3/4	4 1/2		2 1/8
LK100-205	2	4 9/16	3 3/4	6 3/4		
LK100-405Y	4	4 9/16	3 3/4	11		
LK100-505	5	7 3/8	5 5/8	8 3/4	3	
LK100-605Y	6	7 3/8	5 5/8	10 1/2	3	
LK100-805Y	8	7 3/8	5 5/8	9 1/4	3	
LK100-106Y	10	7 3/8	5 5/8	11	3	
LK100-126Y	12	13 1/2	4 1/8	11	6 3/4	
LK100-156Y	15	13 1/2	5 1/8	11 7/8	6 3/4	
LK100-206	20	13 1/2	6 1/8	11 7/8	6 3/4	

12.5 KVDCW

LK125-503	.05	3 3/4	1 3/4	3		
LK125-104	.1	3 3/4	1 3/4	3 5/8		
LK125-254	.25	3 3/4	1 3/4	5 7/8		
LK125-504	.5	3 3/4	3 3/16	5 5/8	2	
LK125-504Y	.5	4 9/16	3 3/4	4 3/8		
LK125-105	1.0	4 9/16	3 3/4	6 5/8		
LK125-205	2	4 9/16	3 3/4	11		
LK125-205Z	2	6	4 11/16	7 3/4	3	2 3/4
LK125-405Y	4	7 3/8	5 5/8	9 1/2	3	
LK125-505	5	7 3/8	5 5/8	12	3	
LK125-605	6	13 1/2	4 1/8	11	6 3/4	
LK125-805Y	8	13 1/2	5 1/8	11 7/8	6 3/4	
LK125-106	10	13 1/2	5 1/8	13 3/4	6 3/4	
LK125-106Y	10	13 1/2	6 1/8	11 7/8	6 3/4	

★ DUPONT POLYESTER FILM

15 KVDCW

PART NUMBER	CAP. MFD.	A	B	C	D	E
LK150-203	.02	3 3/4	1 3/4	3 1/4		
LK150-503	.05	3 3/4	1 3/4	3 1/2		
LK150-104	.1	3 3/4	1 3/4	3 3/4		
LK150-254	.25	3 3/4	1 3/4	7	2	
LK150-254Y	.25	3 3/4	2 1/4	5 1/4		
LK150-504	.5	3 3/4	3 3/16	6 1/2		
LK150-504Y	.5	4 9/16	3 3/4	5		2 3/4
LK150-105	1.0	4 9/16	3 3/4	8 1/2		
LK150-205Y	2	6	4 11/16	9 1/4	3	
LK150-405Y	4	7 3/8	5 5/8	12 1/8	3	
LK150-505	5	13 1/2	4 1/8	11 7/8	6 3/4	
LK150-605	6	13 1/2	5 1/8	11 7/8	6 3/4	
LK150-805	8	13 1/2	6 1/8	11 7/8	6 3/4	

20 KVDCW

LK200-103	.01	3 3/4	2 1/4	3 1/4		
LK200-203	.02	3 3/4	2 1/4	3 1/4		
LK200-503	.05	3 3/4	2 1/4	3 3/4		
LK200-104	.1	3 3/4	2 1/4	4 3/4	2	
LK200-254	.25	3 3/4	3 3/16	6		
LK200-254Y	.25	4 9/16	3 3/4	4 3/4		
LK200-504	.5	4 9/16	3 3/4	7 1/2		
LK200-105	1.0	8	4	9 1/4	4 1/2	2 3/4
LK200-105Y	1.0	4 9/16	3 3/4	12	2	
LK200-205	2	13 1/2	4 1/8	9 1/4	6 3/4	
LK200-205Y	2	7 3/8	5 5/8	10	3	
LK200-405	4	13 1/2	5 1/8	11 7/8	6 3/4	
LK200-505	5	13 1/2	6 1/8	11 7/8	6 3/4	
LK200-605	6	13 1/2	7 1/8	11 7/8	6 3/4	

25 KVDCW

LK250-103	.01	3 3/4	3 3/16	3 1/2		
LK250-203	.02	3 3/4	3 3/16	3 1/2		
LK250-503	.05	3 3/4	3 3/16	4		
LK250-104	.1	3 3/4	3 3/16	4 3/4	*	
LK250-254	.25	4 9/16	3 3/4	6 1/2		
LK250-504	.5	4 9/16	3 3/4	11 1/2		3 7/8 ±1/8
LK250-504Y	.5	8	4	9 1/4	4 1/2	
LK250-504Z	.5	6	4 11/16	6 1/4	3	
LK250-105	1.0	13 1/2	4 1/8	9 1/4	6 3/4	
LK250-205	2	13 1/2	5 1/8	13 3/4	6 3/4	

30 KVDCW

LK300-103	.01	3 3/4	3 3/16	4		
LK300-203	.02	3 3/4	3 3/16	4		
LK300-503	.05	3 3/4	3 3/16	5 1/2	*	
LK300-104	.1	3 3/4	3 3/16	8 3/4		
LK300-254Y	.25	4 9/16	3 3/4	8 3/4		3 7/8
LK300-254Z	.25	6	4 11/16	6	3	±1/8
LK300-504Y	.5	6	4 11/16	9 1/4	*	
LK300-504Z	.5	6	4 11/16	9 1/4	3	
LK300-105Y	1.0	13 1/2	4 1/8	11	6 3/4	
LK300-205	2	13 1/2	6 1/8	12 7/8	6 3/4	

40 KVDCW

LK400-502	.005	4 9/16	3 3/4	5		
LK400-103	.01	4 9/16	3 3/4	5		
LK400-203	.02	4 9/16	3 3/4	5	*	
LK400-503	.05	4 9/16	3 3/4	5 1/2		3 7/8
LK400-104	.1	4 9/16	3 3/4	10 3/4		±1/8
LK400-254	.25	13 1/2	4 1/8	9 1/4	6 3/4	
LK400-504	.5	13 1/2	5 1/8	11 7/8	6 3/4	

50 KVDCW

LK500-203	.02	4 9/16	3 3/4	7 1/2	*	
LK500-503	.05	4 9/16	3 3/4	11	*	
LK500-503Y	.05	8	4	7	4 1/2	
LK500-104	.1	8	4	9 1/4	4 1/2	
LK500-104Y	.1	8	4	9 1/4	*	
LK500-104Z	0.1	6	4 11/16	6 1/2	*	3 5/8
LK500-254	.25	13 1/2	4 1/8	11	6 3/4	±1/8
LK500-254Y	.25	13 1/2	4 1/8	11	*	
LK500-254Z	.25	7 3/8	5 5/8	11	*	
LK500-504	.5	13 1/2	5 1/8	13 3/4	6 3/4	
LK500-504Y	.5	13 1/2	5 1/8	13 3/4	*	

"D" Dimension Asterisk indicates one Terminal and Ground Stud.

WP 4-86

TYPE LR
SPECIALTY CAPACITORS

TYPE LR Capacitors are made to order only, and are devices primarily for filter or discharge applications. The particular advantages are: very small size, low cost and flexibility of configuration.

TYPE LR CAPACITORS

1. Have a voltage range from 1000 volts to 10,000 volts DC. The peak ripple rating is adequate for bypass, filter and coupling applications.

2. Can be designed to meet all military and commercial requirements. This does not mean that type LR is the best unit for all applications, but indicates the flexibility and range is very great. See How to Order on page A16.

3. Are limited within temperature range of —55°C to 125°C.

4. Can be designed for high current discharge service. The limiting factor for discharge current is a time factor, i.e. while the resonant frequency of Type LR units is very high, the impedance of the load circuit often has quite an effect on the peak current, Type LR can be designed to withstand the maximum short circuit current. The limiting factor is the series resonant frequency of the capacitor.

5. Have a power factor of less than 0.5% at 25°C.

6. High resistivity in the order of 10,000 meg. x mfd.

7. Are a desirable type for potting application. Using the proper housing, binding of the epoxy or potting compound is very good, eliminating voids, air pockets, parting lines, strains on the capacitor element due to terminal cycling, etc.

8. Are very economical. Their economy is due to the lack of housing or due to an inexpensive housing, saving the cost of the housing and the labor required to house it.

9. Are impregnated with a solid material.

10. Will withstand severe shock and vibration when properly mounted.

11. The geometric configuration of the **Type LR** capacitors is extremely flexible. They are available in tubular form such that for a given capacitance value the diameter and length is variable, and only limited by the necessary volume required. Similarly, the rectangular cross section may also be designed to the required width, thickness and length provided the proper volume is available. Note volume factors indicated at bottom of this column.

There are many possible varieties available and the chart outlines the possibilities:

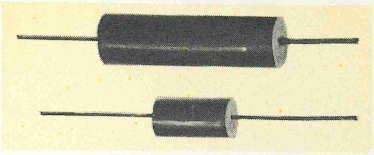
A. terminals
   (1) axial wire leads (solid or stranded)
   (2) radial wire leads (solid or stranded)
   (3) axial studs
   (4) solder lugs
B. Extended foil or tab type winding
C. Housing
   (1) for potting application using epoxy impregnated electrical paper
   (2) mylar* wrap and epoxy fill.
   (3) phenolic case

Volume factors for DC filter applications with rated voltage at 65°C—and one dimension 3 inches. (approx).

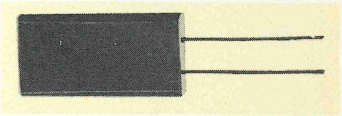
RATED VOLTAGE	CUBIC INCHES PER MFD.	RATED VOLTAGE	CUBIC INCHES PER MFD.
1000 V	1.9	5000 V	12.0
2000 V	3.1	6000 V	22.5
3000 V	5.6	7500 V	36.6
4000 V	8.3	10,000 V	54.0

★ DUPONT POLYESTER FILM

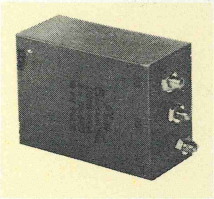
TYPE LR Capacitors have many possible variations of shape. All cannot be illustrated, but as a guide some styles are illustrated below.



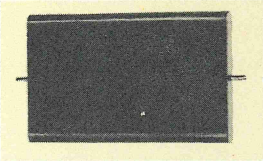
Tubular type with axial leads. This type is available with an impregnated paper wrap and is useful for potting applications or with a Mylar* wrap and epoxy end fill for commercial use exposed to the environment.



Rectangular type with two wire leads from the same end. These leads may be insulated and flexible if desired. Similar to the tubular type illustrated above, an impregnated paper wrap or Mylar* wrap with epoxy end fill are available.

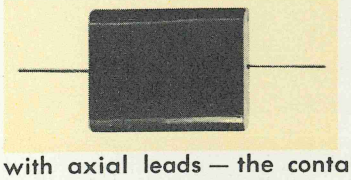


Hermetically sealed, oil filled, rectangular phenolic tube. The illustration shows the means of enclosing three .03 mfd 10 KV capacitors in one case. One stud (not seen) is common to all of three capacitors. Size is 1¼"x2"x2¾"



Rectangular type with axial studs. This item is available with the impregnated paper wrap or Mylar* wrap with an epoxy end fill. Size of this unit is 6 inches long, 4⅛ inches wide and 1/2 inch thick.

Tubular type with axial studs. Availability similar to illustration at top of column.



Tubular type with axial leads — the container is black phenolic case with an epoxy end fill.

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TYPES LN AND BNZ

SPECIALTY CAPACITORS

TYPES LN AND BNZ capacitors are made to order only, for your circuit and physical specifications. The housings are phenolic, with square or rectangular cross-sections. They may be connected in series or parallel to withstand extremely high voltages or produce very large capacitance values.

TYPE LN capacitors are designed primarily for DC filter or energy storage/discharge applications.

1. Voltage range of up to 500,000 VDC per unit.
2. Temperature range of up to 125°C.

Some examples of LN capacitors already manufactured:

PART NUMBER LN200-205A

20KV discharge @ 8000 pps
2.0mfd +20, —10%
Size: 9½ x 18 x 7" high

PART NUMBER LN650-304A

65KVDC filter, with occasional disch.
.3mfd ±10%
Size: 6¾ x 8¾ x 14½" high

PART NUMBER LN800-204G

80KVDC filter
2 x .1mfd ±10% (dual capacitor)
Size: 13½ x 6¾ x 11½"high

PART NUMBER LN3000-303A

300KVDC filter, with 30KV P-P ripple
.03mfd ±5%
Size: 7¾ x 9 3/16 x 39" high

TYPE BNZ capacitors are designed for high frequency voltages, in the radio frequency range or below.

1. Voltage range of up to 100 KV, RMS
2. Temperature range of up to 105°C.

Some examples of BNZ capacitors already supplied are:

PART NUMBER BNZ260-283B

2600 V, RMS @ 27-60KHZ, 50a RMS
.028mfd ±5%
Size: 6¾ x 4¾ x 5½" high

PART NUMBER BNZ900-203A

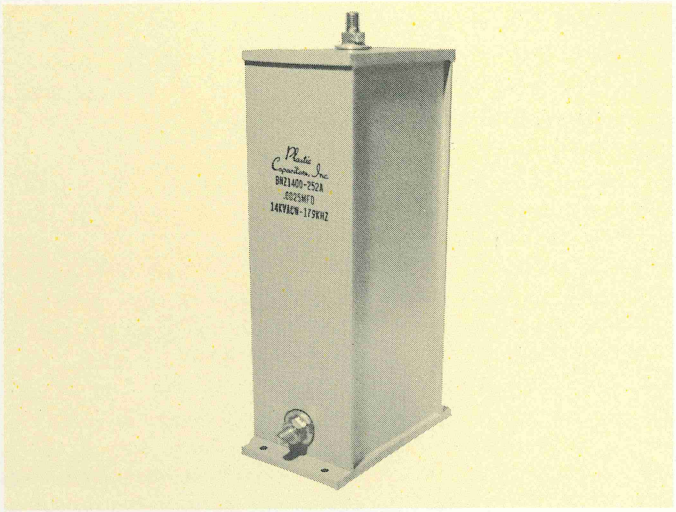
9KV RMS @ 50Hz
.02mfd ±10%
Size: 4¾ x 1¾ x 8¾" high

PART NUMBER BNZ2700-123A

27KV RMS @ 400Hz
.0125mfd —0, +20%
Size: 3¾ x 2¾ x 15" high

PART NUMBER BNZ5000-243A

50KV RMS @ 200Hz
.024mfd ±5%
Size: 6¾ x 3¾ x 17½" high



BOTH TYPES LN & BNZ capacitors can be supplied with or without an integral footed mounting plate.

MOUNTING POSITION: Both types are completely filled, void-free, with mineral oil or silicone fluid impregnant, so that they may be mounted and function in any position.

TERMINATIONS: Screw terminations can be placed in virtually any location on the surface of the capacitors, observing minimum spacing necessary to avoid terminal to terminal arcover.

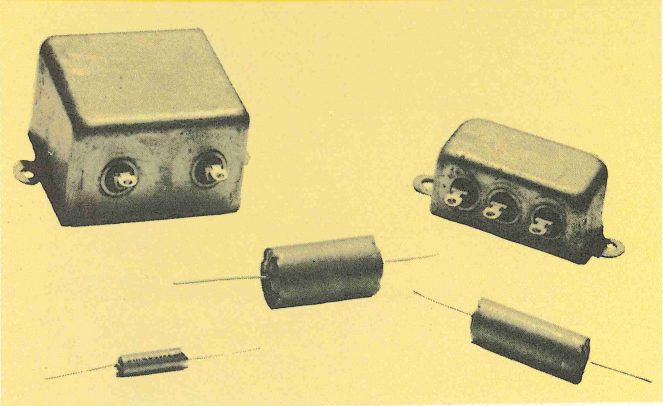
How to order

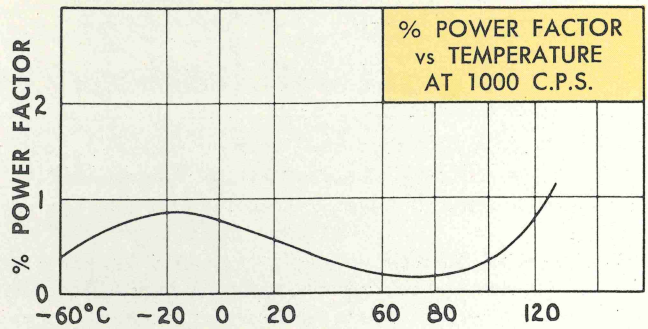
Information required if applicable

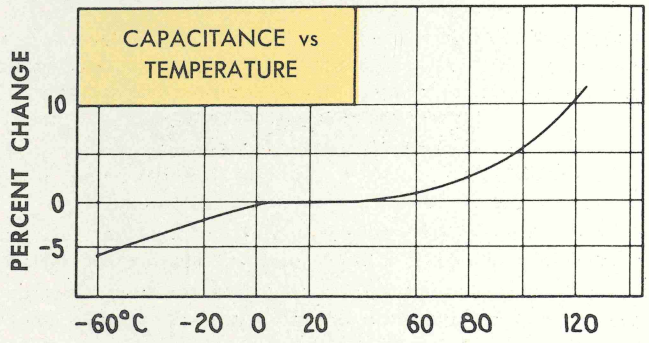
1. Specify peak voltage and working voltage.
2. Specify capacitance and tolerance.
3. Indicate any physical limiting dimensions.
4. Almost every application requires some voltage variation or ripple on the capacitor. Indicate the ripple in peak-to-peak of RMS figures. The frequency of the ripple is also very important.
5. If the capacitor is to be used for discharge or pulse coupling service it is desirable to know the following:
   a. peak current of discharge
   b. time duration of discharge
   c. voltage to which the capacitor discharges
   d. amount of discharges per second or per minute
   e. if a fault condition exists such that the capacitor might be shorted thru a very low impedance, (currents of over 50,000 amperes peak are common)
6. If the capacitor is to be used for AC applications indicate:
   a. frequency
   b. current or voltage applied
7. Duty cycle for AC and discharge applications is important.
8. Environment conditions such as operating and storage temperature, vibration and shock, humidity, etc. should be specified when ordering.
9. Specify how the capacitor is to be mounted—vertical or which plane of the horizontal.
10. Specify if unit is to be operated under gas or air — (indicate pressure) or under oil.
11. Environmental conditions.
12. Life expectancy required.
13. Temperature. Operating and non-operating

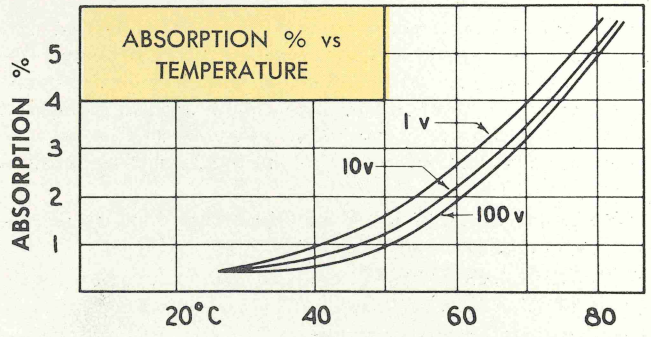
TYPE AB

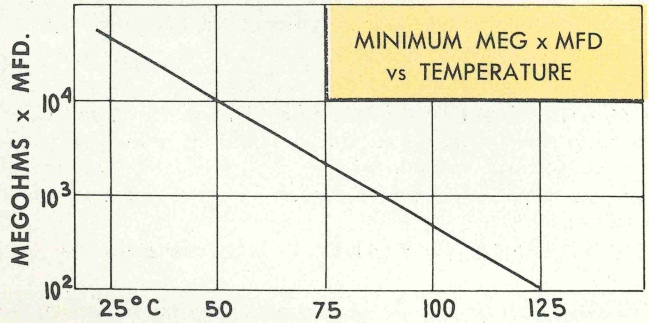
METALLIZED MYLAR* CAPACITORS











★ DUPONT POLYESTER FILM

MYLAR*FILM, one of the many dielectrics employed by Plastic Capacitors, Inc. in the fabrication of the highest quality capacitors, offers particular advantages not obtainable with other materials. Mylar* satisfies the requirements of high resistance, low absorption, excellent retrace and capacitance stability over a wide temperature range and high ambient operating conditions.

METALLIZED MYLAR* has several advantages that are outstanding. The self-healing characteristics are well-known and extend the useful life of the capacitor. The second, and most over-looked feature, is the possibility of making full use of the highest volts-per-mil rating of the film by eliminating all the weak dielectric areas. This results in extreme small size without sacrificing life, reliability and economy.

WIDE TEMPERATURE RANGE: Operating and storage, minus 90°C to 125°C. (Consult specific type listing for complete information.)

CAPACITANCE TOLERANCE standard is 20%. Also available are tolerances of 10%, 5%, 2% and 1%. Nominal values of capacitance of 1 mfd. or less are measured with 1000 Hz applied to the bridge and 60 Hz for nominal values greater than 1 mfd.

INSULATION RESISTANCE: At 25°C the RC exceeds 50,000 megohms, but need not exceed 100,000 megohms. Either terminal to case is in excess of 50,000 megohms.

For other temperatures consult "Resistance vs. Temperature" curve for minimum RC, but need not exceed double the minimum value at any temperature.

LOW DIELECTRIC ABSORPTION: Variable and a function of voltage applied and temperature. (See applicable curves) At room temperature, dielectric absorption is less than 0.3%, when tested in the following manner: Short capacitor for two hours. Apply a stable charging voltage for one hour. Discharge the capacitor for 1/3 second. Periodically read recovery voltage until a maximum is reached. The voltmeter or electrometer should have a terminal resistance of 10^{11} ohms or more. Percent absorption is defined by

$$\% \text{ Absorption} = \frac{\text{Max. Recovery voltage X100}}{\text{Charge Voltage}}$$

RIPPLE: The sum of the peak ripple voltage plus the DC voltage should not exceed the nameplate voltage. Listed below are acceptable peak to peak ripple voltages in percent of nameplate voltage ratings:

Frequency Hz	Peak to Peak Ripple Voltage
60	25%
120	20%
400	10%
1000	8%

POWER FACTOR is a function of frequency, temperature and geometry. (See typical curve of "Power Factor vs. Temperature"). Consult specific type listing for complete information.

APPLICATIONS:

Computer circuits
Audio coupling
Tuned filters
Pulse forming networks
Energy storage
Oscillator circuits
Power supply filters
Power factor correction
Arc and spark suppression
Integrating circuits
Audio and RF bypass
Analog computers
Low and high pass filters
Radio frequency coupling

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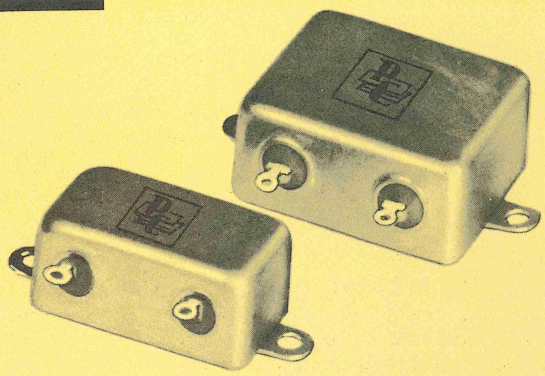
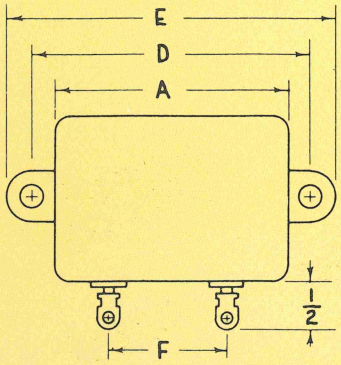
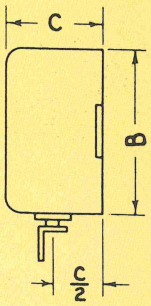
TYPE AB

METALLIZED MYLAR★ CAPACITORS







TYPE AB Capacitors are metallized Mylar* elements hermetically sealed in a bathtub style container. The self-healing and clearing characteristics make possible the smallest high quality capacitor for the given rating.

All units are extended foil construction, assuring low inductance and the ability to handle minute current and voltage differentials over a wide frequency range. The bathtub style solves mounting problems, and the glass solder-seal bushing—terminal assembly is both economical and effective.

HOW TO ORDER: Check listing for voltage and capacitance required and use indicated part number. Add suffix letter

X for side mounted terminals
Y for top mounted terminals
Z for bottom mounted terminals

Add 20 for standard 20% tolerance, 10, 5, 2 or 1 for 10%, 5%, 2% or 1% tolerance.

PART NUMBER	CAP. MFD.	VOLTS D.C.	CASE SIZE A	B	C
AB2-504	0.5	200	1 1/8	1	13/16
AB2-105	1.0	200	1 1/8	1	13/16
AB2-205	2.0	200	1 1/8	1	13/16
AB2-405	4.0	200	1 3/4	1	3/4
AB2-505	5.0	200	1 3/4	1	3/4
AB2-605	6.0	200	1 3/4	1 1/4	7/8
AB2-805	8.0	200	1 3/4	1 1/4	7/8
AB2-106	10.0	200	2	1 3/4	7/8
AB2-126	12.0	200	2	1 3/4	7/8
AB2-156	15.0	200	2	1 3/4	7/8
AB2-206	20.0	200	2	2	1 1/8
AB2-306	30.0	200	2	2	1 1/4
AB3-504	0.5	300	1 1/8	1	13/16
AB3-105	1.0	300	1 1/8	1	13/16
AB3-205	2.0	300	1 3/4	1	3/4
AB3-405	4.0	300	1 3/4	1 1/4	7/8
AB3-505	5.0	300	2	1 3/4	7/8
AB3-605	6.0	300	2	1 3/4	7/8
AB3-805	8.0	300	2	1 3/4	7/8
AB3-106	10.0	300	2	2	1 1/8
AB3-126	12.0	300	2	2	1 1/8
AB3-156	15.0	300	2	2	1 1/4
AB4-104	0.1	400	1 1/8	1	13/16
AB4-254	0.25	400	1 1/8	1	13/16
AB4-504	0.5	400	1 1/8	1	13/16
AB4-105	1.0	400	1 3/4	1	3/4
AB4-205	2.0	400	1 3/4	1 1/4	7/8
AB4-405	4.0	400	2	1 3/4	7/8
AB4-505	5.0	400	2	2	1 1/8
AB4-605	6.0	400	2	2	1 1/8
AB4-805	8.0	400	2	2	1 1/4
AB6-503	0.05	600	1 1/8	1	13/16
AB6-104	0.10	600	1 1/8	1	13/16
AB6-254	0.25	600	1 1/8	1	13/16
AB6-504	0.50	600	1 3/4	1 1/4	7/8
AB6-105	1.0	600	2	1 3/4	7/8
AB6-205	2.0	600	2	2	1 1/8

★ DUPONT POLYESTER FILM

A	B	D	E	F
1 1/8	1	1 7/16	1 3/4	1/2
1 3/4	1	2 1/8	2 1/2	1 1/16
1 3/4	1 1/4	2 1/8	2 1/2	1 1/16
2	1 3/4	2 3/8	2 3/4	1 1/16
2	2	2 3/8	2 3/4	1 1/16

CONTAINER is hot-tinned steel or terne-plate, designed to withstand the 100 hour salt spray test of MIL-QQ-151A.

TERMINALS are solder lugs in a soldered compression seal bushing.

TEMPERATURE RANGE is —90°C to 125°C at full nameplate rating **except** all capacitors greater than 10 mfd. with a 200 volt nameplate rating should be de-rated to 150 volts in the temperature range of 100°C to 125°C.

POWER FACTOR is less than 1% at 25°C. Power factor will be measured at 1000 Hertz for 1 mfd. or less capacitance and at 60 Hertz for nominal values greater than 1 mfd.

TEST CONDITIONS

TEST VOLTAGE: Terminal to terminal is 200% rated voltage for one minute without a permanent breakdown.

Terminal to case: With both terminals tied together, terminals to case test voltage is 200% rated voltage for two minutes.

The test voltage shall be applied and removed through a resistance of not less than one ohm per volt applied and at room temperature.

LIFE TEST will be conducted at 125°C with a test potential of 120% nameplate voltage applied for 250 hours. One failure of twelve so tested will be permitted. Failure is defined as a permanent short circuit, open circuit, drop in capacitance of 5% or a change in insulation resistance to a value lower than the minimum RC indicated in the insulation resistance paragraph.

TEMPERATURE AND IMMERSION cycling shall be conducted per requirements of MIL-C-25D.

MOISTURE RESISTANCE shall be conducted per requirements of MIL-C-25D.

CORROSION OR SALT SPRAY test shall be conducted according to the 100 hour requirement of MIL-QQ-151A.

VIBRATION AND SHOCK test shall be performed per MIL-C-25D or MIL-E-5272 (any method).

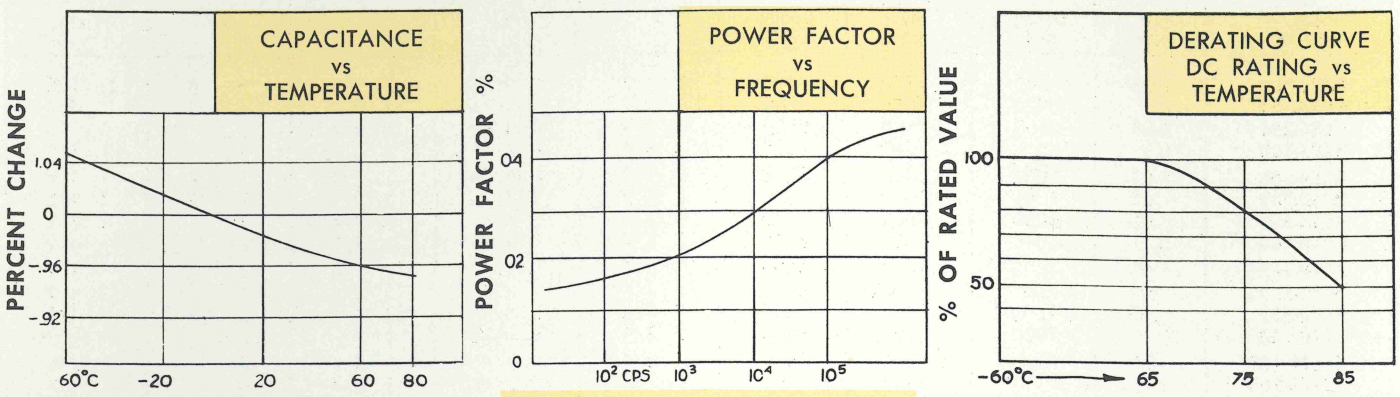
PRODUCTION HERMETIC SEAL TEST is conducted by immersing the capacitors in silicone fluid at a temperature of 125°C for four minutes. There shall be no appearance of air escaping from the capacitor for the duration of the immersion.

CAPACITANCE TOLERANCE shall be measured at 25°C ±5°C.

HUMIDITY tests may be performed according to any method of Mil-C-25D, Mil-E-5272A or Mil-E-6400.

TYPE H FILM CHARACTERISTICS

LOW POWER FACTOR



TYPICAL CURVES

TYPE H plastic film used as the solid dielectric of a capacitor results in extremely low power factors. Coupled with a high possible potential gradient, Type H meets a specific need. Type 'HC' is an inexpensive capacitor which will handle very large currents of the AC or pulse type.

TEMPERATURE RANGE. Minus 60°C to plus 75°C. Full nameplate ratings to 65°C. Derate to 80% nameplate voltage for operation at 75°C.

CAPACITANCE TOLERANCE. Standard capacitance tolerance is plus or minus 10%. 5% and 2% available on special order.

TEST VOLTAGE is 200% DC nameplate voltage for one minute at 25°C.

LIFE. Design life of TYPE H capacitors is 10,000 hours at 65°C. A suitable life test is the application of 120% DC nameplate voltage applied for 1000 hours at 65°C ambient temperature. Compliance is indicated with less than two failures of a sample lot of twelve.

IMPREGNANT. Mineral oil & silicone is the liquid dielectric.

SALT SPRAY. All outside surfaces are treated to successfully withstand a 50 hour salt spray. On request, 100 or 150 hour salt spray resistance may be obtained.

IMMERSION. All TYPE H capacitors are hermetically sealed and designed to pass the immersion test of MIL-C-25D.

TEMPERATURE: COEFFICIENT. The temperature coefficient of TYPE H film impregnated with silicone fluid is negative 800 PPM/ C.

APPLICATIONS. TYPE H capacitors find their major applications in circuits which require low-loss, high voltage and high current carrying capacitors.

Pulse Forming Networks — Radio Frequency Bypass
Audio Frequency Bypass — Power Supply Filters
High Frequency Power Factor Correction
De-spiking Networks — Radio Frequency Coupling
Audio Frequency Coupling — Resonant RF and Audio Circuits
Pulse Coupling Capacitors

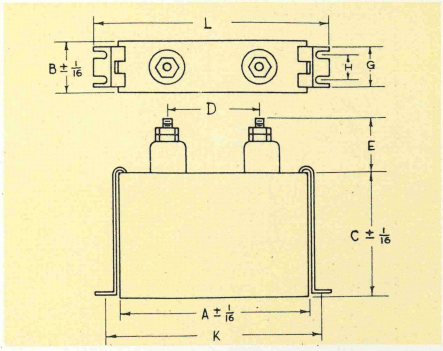
TYPE HC

PLASTIC FILM PULSE CAPACITORS — CP70 CONTAINER

CASE. CP 70 style rectangular base and squeeze seam covers of lead coated steel. Finish is a coat of synthetic lacquer.

TERMINALS are mounted on glazed steatite bushings. Neoprene gaskets or solder seals are used to effect the hermetic seal and a nut and solder lug are provided as part of the terminal assembly. Steatite is used as the insulation between the terminal post and the case for all voltages greater than 1000. All terminal bushings are oil-filled.

BRACKETS. Footed backets are supplied at no charge. A nominal charge is made for spade screw type brackets. These may be ordered only with capacitors.



PART NUMBER	CAP MFD	VOLTS DC	1 KHz PEAK VOLTS	VOLTS PULSE	A	B	C	D	E
HC10-104	0.1	1000	600	800	1 3/4	1	2 1/4	13/16	3/4
HC10-254	0.25	1000	600	800	1 3/4	1	2 1/2	13/16	3/4
HC10-504	0.5	1000	600	800	2 1/2	1 3/16	4 1/2	1 1/8	3/4
HC10-105	1.0	1000	600	800	3 3/4	1 1/4	4	2	3/4
HC10-205	2	1000	600	800	3 3/4	1 3/4	4	2	3/4
HC25-104	0.1	2500	1200	1500	2 1/2	1 3/16	2 1/2	1 1/8	1 1/8
HC25-254	0.25	2500	1200	1500	3 3/4	1 1/4	3 1/4	2	1 1/8
HC25-504	0.5	2500	1200	1500	3 3/4	1 3/4	4 1/4	2	1 1/8
HC25-105	1.0	2500	1200	1500	3 3/4	3 3/16	4 1/4	2	1 1/8

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TYPE HC (CONTINUED)

PLASTIC FILM PULSE CAPACITORS — CP70 CONTAINER

PART NUMBER	CAP MFD	VOLTS DC	1 KHz PEAK VOLTS	VOLTS PULSE	A	B	C	D	E
HC35-503	.05	3500	1500	2500	2 1/2	1 3/16	2 1/2	1 1/8	1 1/8
HC35-104	0.1	3500	1500	2500	2 1/2	1 3/16	3 3/4	1 1/8	1 1/8
HC35-254	0.25	3500	1500	2500	3 3/4	1 3/4	5 1/4	2	1 1/8
HC35-504	0.5	3500	1500	2500	3 3/4	3 3/16	3 3/4	2	1 1/8
HC50-103	.01	5000	2000	3500	2 1/2	1 3/16	2 1/2	1 1/8	1 1/8
HC50-203	.02	5000	2000	3500	2 1/2	1 3/16	2 3/4	1 1/8	1 1/8
HC50-503	.05	5000	2000	3500	3 3/4	1 1/4	2 3/4	2	1 1/2
HC50-104	0.1	5000	2000	3500	3 3/4	1 3/4	3 1/2	2	1 1/2
HC70-103	.01	7000	3000	5000	3 3/4	1 1/4	2 1/4	2	1 1/2
HC70-203	.02	7000	3000	5000	3 3/4	1 3/4	2 1/4	2	1 1/2
HC70-503	.05	7000	3000	5000	3 3/4	1 3/4	3 1/2	2	1 1/2
HC70-104	0.1	7000	3000	5000	3 3/4	3 3/16	4	2	1 1/2
HC100-103	.01	10 KV	4500	7500	3 3/4	1 3/4	2 3/4	2	2 1/4
HC100-203	.02	10 KV	4500	7500	3 3/4	1 3/4	3 3/4	2	2 1/4
HC100-503	.05	10 KV	4500	7500	3 3/4	3 3/16	3 3/4	2	2 1/4
HC100-104	0.1	10 KV	4500	7500	4 9/16	3 3/4	5 1/4	2	2 1/4
HC140-103	.01	14 KV	6000	10 KV	3 3/4	1 3/4	3	2	2 3/4
HC140-203	.02	14 KV	6000	10 KV	3 3/4	3 3/16	3 3/4	2	2 3/4
HC140-503	.05	14 KV	6000	10 KV	4 9/16	3 3/4	4 3/4	2	2 3/4
HC140-104	0.1	14 KV	6000	10 KV	4 9/16	3 3/4	8 1/2	2	2 3/4
HC200-202	.002	20 KV	7500	15 KV	3 3/4	2 1/4	3	2	2 3/4
HC200-502	.005	20 KV	7500	15 KV	3 3/4	2 1/4	4	2	2 3/4
HC200-103	.01	20 KV	7500	15 KV	3 3/4	2 1/4	5	2	2 3/4
HC200-203	.02	20 KV	7500	15 KV	3 3/4	3 3/16	6 1/4	2	2 3/4

TYPE HG

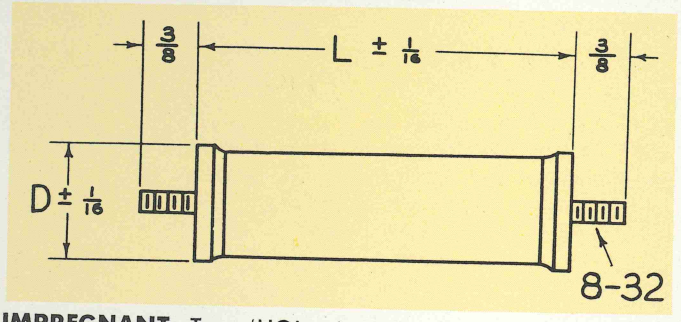
PLASTIC FILM PULSE CAPACITORS — GLASS CONTAINERS

TYPE 'HG' capacitors are excellent radio frequency current and pulse forming network capacitors. Geometric design factors are such that a minimum of inductance is assured.

CASE is a heavy wall glass pillar prepared with fused silver bands. A non-magnetic metal ferrule is soldered on each end of the glass tube, producing a vacuum tight assembly.

THE AIR BUBBLE in each unit may or may not be visible between the label and the glass tube.

VIBRATION. All units three inches or less in length will pass the MIL-C-25D vibration test supported on one end. Units seven inches or less in length must be supported on both ends. Units longer than seven inches may or may not pass the 10G vibration test.



IMPREGNANT. Type 'HG' units are silicone fluid filled and impregnated.

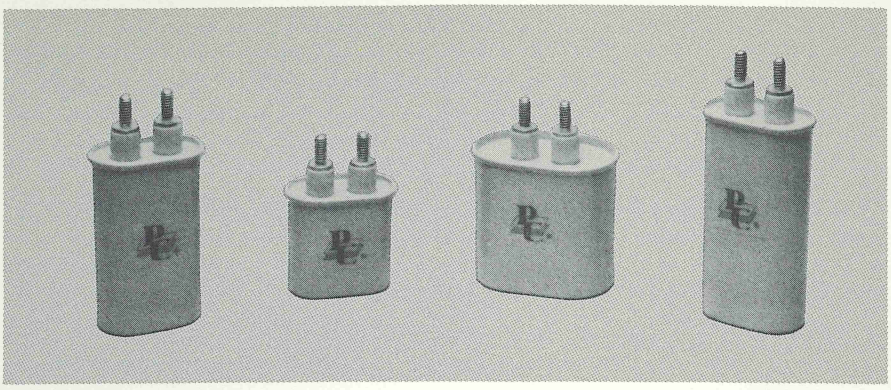
PART NUMBER	CAP MFD	VOLTS DC	VOLTS PULSE	DIMENSIONS L	DIMENSIONS D
HG25-202	.002	2500	1500	1	3/4
HG25-502	.005	2500	1500	1	13/16
HG25-103	.01	2500	1500	1	1 1/8
HG25-203	.02	2500	1500	1 1/2	1 1/8
HG25-503	.05	2500	1500	2	1 3/8
HG25-104	0.1	2500	1500	2 1/2	1 5/8
HG35-102	.001	3500	2500	1	3/4
HG35-202	.002	3500	2500	1	3/4
HG35-502	.005	3500	2500	1	1 1/8
HG35-103	.01	3500	2500	1	1 5/8
HG35-203	.02	3500	2500	1 1/2	1 3/8
HG35-503	.05	3500	2500	2 1/2	1 5/8
HG50-102	.001	5000	3500	2	3/4
HG50-202	.002	5000	3500	2	13/16
HG50-502	.005	5000	3500	2	1 1/8
HG50-103	.01	5000	3500	2	1 3/8
HG50-203	.02	5000	3500	3	1 3/8
HG50-503	.05	5000	3500	5 1/2	1 5/8
HG70-501	.0005	7000	5000	2	3/4
HG70-102	.001	7000	5000	2	3/4
HG70-202	.002	7000	5000	2	29/32
HG70-502	.005	7000	5000	2	1 5/8
HG70-103	.01	7000	5000	4	1 1/8
HG70-203	.02	7000	5000	4	1 5/8

PART NUMBER	CAP MFD	VOLTS DC	VOLTS PULSE	DIMENSIONS L	DIMENSIONS D
HG100-201	.0002	10 KV	7000	3	3/4
HG100-501	.0005	10 KV	7000	3	3/4
HG100-102	.001	10 KV	7000	3	29/32
HG100-202	.002	10 KV	7000	3	1 1/8
HG100-502	.005	10 KV	7000	6	1 1/8
HG100-103	.01	10 KV	7000	6	1 3/8
HG140-101	.0001	14 KV	10 KV	4	3/4
HG140-201	.0002	14 KV	10 KV	4	3/4
HG140-501	.0005	14 KV	10 KV	4	3/4
HG140-102	.001	14 KV	10 KV	4	29/32
HG140-202	.002	14 KV	10 KV	4	1 3/8
HG140-502	.005	14 KV	10 KV	8	1 1/8
HG140-103	.01	14 KV	10 KV	8	1 5/8
HG200-101	.0001	20 KV	15 KV	5 3/4	3/4
HG200-201	.0002	20 KV	15 KV	5 3/4	3/4
HG200-501	.0005	20 KV	15 KV	5 3/4	29/32
HG200-102	.001	20 KV	15 KV	5 3/4	1 1/8
HG200-202	.002	20 KV	15 KV	5 3/4	1 5/8
HG250-500	.00005	25 KV	20 KV	7 1/4	3/4
HG250-101	.0001	25 KV	20 KV	7 1/4	3/4
HG250-201	.0002	25 KV	20 KV	7 1/4	3/4
HG250-501	.0005	25 KV	20 KV	7 1/4	29/32
HG250-102	.001	25 KV	20 KV	7 1/4	1 3/8
HG250-202	.002	25 KV	20 KV	7 1/4	1 5/8

WP 4-86

TYPE BVX

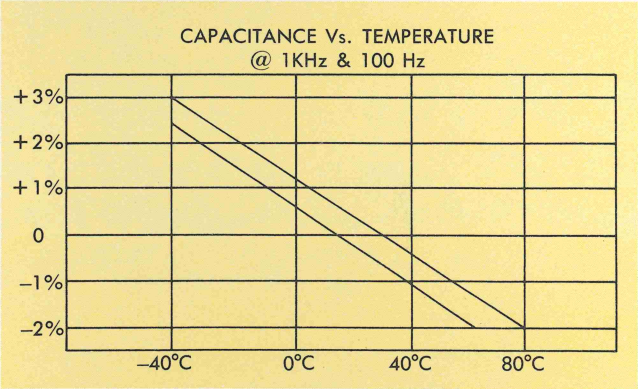
SCR/SNUBBER CAPACITORS



TYPE BVX CAPACITORS are designed for demanding usage in the electrical industry, to take the "Peak" off of an SCR's pulse, especially for large horsepower motor controls. All items in this series are low inductance, use polypropylene film dielectric. Liquid impregnant has a flash point greater than 200°C.

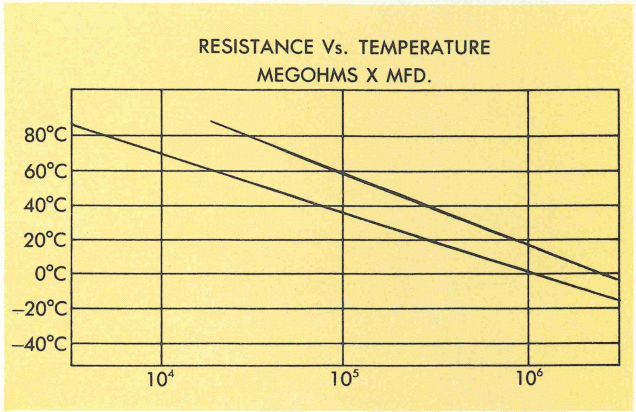
CAPACITANCE TOLERANCE IS ±10% of nominal value; closer tolerance available on special order. Standard 10% value is not marked on capacitors.

TEMPERATURE RANGE IS –55°C to +75°C with nameplate voltage applied. Storage temperature range is –55° to +90°C.



TEST VOLTAGE: A DC test voltage range equal to 200% of the rated peak AC voltage for 1 minute, at 25°C.

DESIGN LIFE of type BVX capacitors, is 10,000 hours at +65°C. A suitable life test is the application of a DC voltage equal to 140% of the peak AC voltage for 1000 Hours, at +65°C ambient temperature. Compliance is indicated with less than 2 failures in a sample lot of 12.



POWER FACTOR will not exceed .03% over the operating temperature range, measured at 1KHz.

MOUNTING: Capacitors are designed to be mounted in any position.

CASE CONSTRUCTION: Cases are drawn oval cans, made of terneplated steel. The cover is double-roll seamed and soldered. Soldering avoids the problems encountered with sealant-gasket techniques. The case is painted with grey lacquer.

TERMINALS: Are glazed steatite, with all sealing points metallized and solder sealed. No gaskets are used, avoiding potential leakage problems. Studs are electro-tinned brass, 1/4-20 threads.

TORQUE: On terminals should not exceed 30 pound-inches.

BRACKETS: Footed mounting brackets are supplied at no extra charge.

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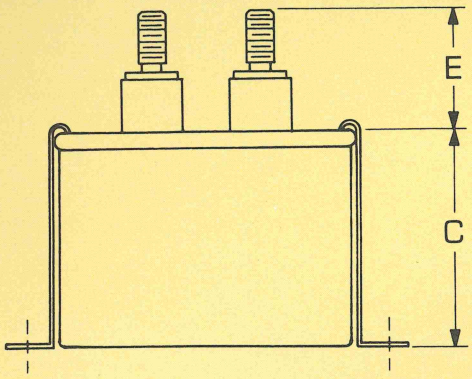
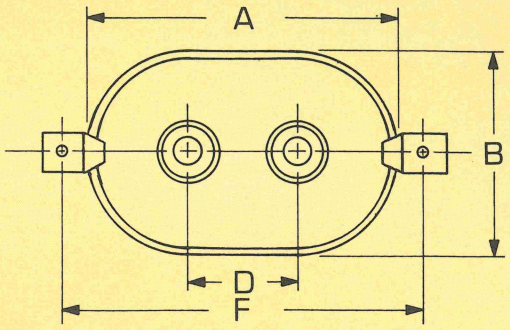
TYPE BVX

SCR/SNUBBER CAPACITORS





CASE BASE DIMENSIONS A	B	TERMINAL HEIGHT E	MOUNTING C-C F
2.16	1.31	1 1/16	2 7/8
2.91	1.91	1	3 9/16
3.66	1.97	1	4 3/8

IMPORTANT NOTICE: AT NO TIME SHOULD THE VOLT-AMPERE RATING, GIVEN IN THE FOLLOWING TABLE, BE EXCEEDED. THE FORMULA FOR CALCULATING VOLT-AMPERES IS GIVEN AS FOLLOWS:

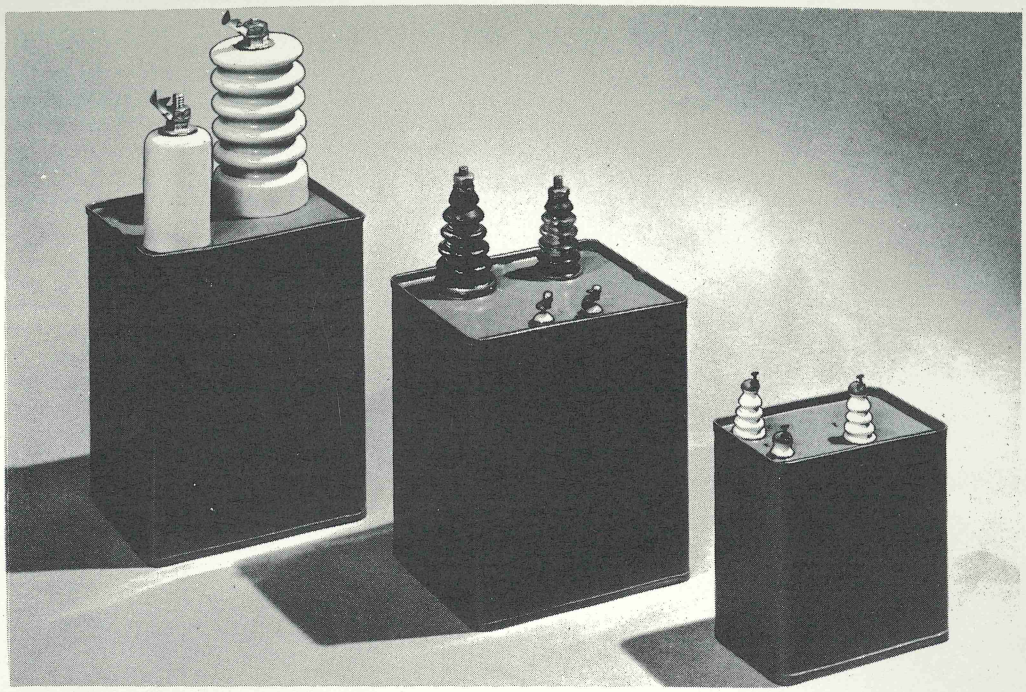
$VA = (E^2)(2\pi fC)$ Where E is the voltage in volts, f is the operating frequency in Hertz and C is the Capacitance in FARADS.

OTHER VOLTAGE & CAPACITANCE VALUES AVAILABLE. CALL US WITH YOUR SPECIFIC REQUIREMENTS.

PART NUMBER	CAP. MFD.	PEAK VOLTS	A +.12 −.06	B ±.06	C +.12 −.06	D ±.03	MAXIMUM VA RATING
BVX35-105	1	350	2.16	1.31	2.88	.81	3610
BVX35-205	2	350	2.16	1.31	2.88	.81	3610
BVX35-305	3	350	2.16	1.31	3.88	.81	4610
BVX35-505	5	350	2.91	1.91	2.62	1.38	4900
BVX35-106	10	350	2.91	1.91	4.75	1.38	7690
BVX35-156	15	350	2.91	1.91	5.75	1.38	9000
BVX35-206	20	350	3.66	1.97	5.75	1.38	12700
BVX60-105	1	600	2.16	1.31	3.88	.81	4610
BVX60-205	2	600	2.16	1.31	4.75	.81	5470
BVX60-305	3	600	2.91	1.91	3.88	1.38	6540
BVX60-505	5	600	2.91	1.91	4.75	1.38	7690
BVX60-106	10	600	3.66	1.97	6.25	1.38	13600
BVX100-105	1	1000	2.16	1.31	3.88	.81	4610
BVX100-205	2	1000	2.91	1.91	3.88	1.38	6540
BVX100-305	3	1000	2.91	1.91	4.50	1.38	7360
BVX100-505	5	1000	2.91	1.91	6.25	1.38	9660

• PULSE FORMING NETWORKS
• PLASTIC FILM CAPACITORS
• PAPER DIELECTRIC CAPACITORS
• HIGH VOLTAGE POWER SUPPLIES

PULSE FORMING NETWORKS



Pulse forming networks are designed for use in circuits which convert direct current or sinusoidal alternating current to uni-directional square pulses at high energy levels for short duration. The performance of the pulse forming network is the heart of the modulator for radar or missile operation.

TYPE E PULSE FORMING NETWORKS are the most commonly used for all types of radar applications. By definition, a Type E network is defined as having equal capacitance per mesh and mutual inductance between adjacent coils.

The common practice for use of a Type E network is indicated in the circuit Figure a.

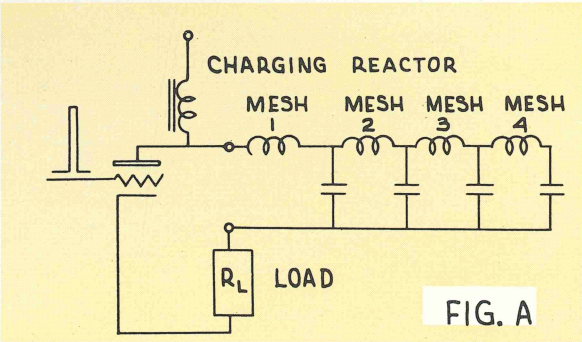


FIG. A

Activating the switch type discharges the energy of the capacitors through the inductors of the pulse forming network, resulting a flat topped wave across R_1. The squareness of the wave is entirely a function of the number of meshes provided the external circuit is non-reactive. In addition, the energy stored in the network will be completely dissipated into the load R_1 when it matches the characteristic impedance of the pulse forming network. Furthermore, the voltage appearing across the load is one-half the voltage at which the network is charged.

The number of MESHES or SECTIONS of a pulse forming network is determined by the rise time requirements and the duration of the pulse width. Basically, the rise time of the network is determined by the rise time of one mesh of the network. Shortening the pulse width of the mesh decreases the rise time. This results in the need for more meshes for a given pulse width. Total capacitance requirements of a Type E pulse forming network

$$C = \frac{T}{2Z} \text{ where}$$

C=microfarads
T=time in microseconds
Z=characteristic impedance

Capacitance per mesh is the total capacitance divided by the number of meshes.

Similarly, the total inductance is

$$L = \frac{TZ}{2} \text{ where } L = \text{inductance in microhenrys.}$$

Inductance per mesh is the total inductance divided by the number of meshes.

From the practical standpoint, the first and last inductor are generally larger and the others are smaller. This, in conjunction with proper adjustment of the mutuals between adjacent inductors, results in a flat topped discharge wave.

RISE TIME requirement is determined from the magnetron characteristics in conjunction with the pulse transformer and other components in the modulator circuit. A long rise time will result in poor spectrum characteristics and a rise time which is too short might result in magnetron sparking, overshoots and other undesired characteristics of operation. For ease of specifying, rise time is generally indicated along the linear portion of the wave front and measured from 10% to 90% of the average peak amplitude. (See Figure b)

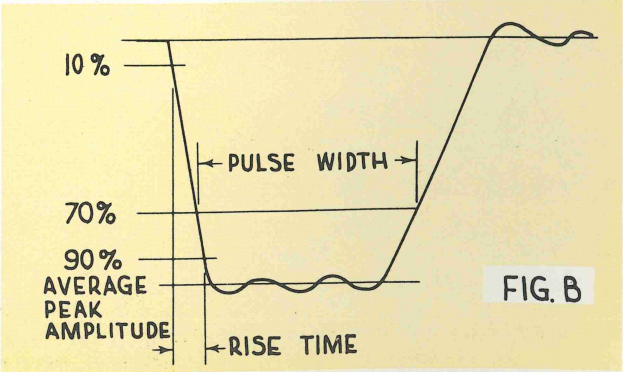


FIG. B

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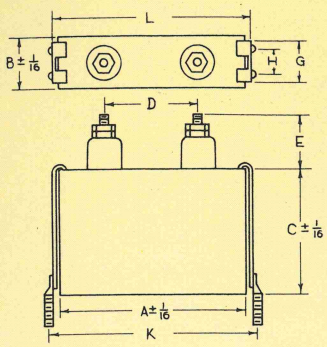
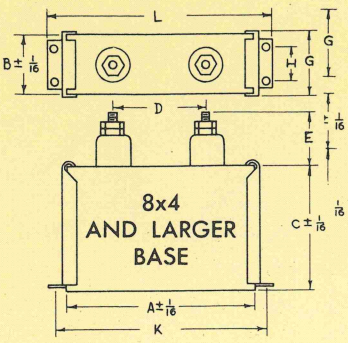
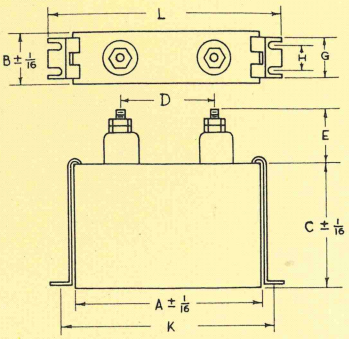
PULSE FORMING NETWORKS







PULSE WIDTH is a requirement which is determined from various factors, such as range, of the radar system. Pulse width is ordinarily specified at 70% of the average peak amplitude (the half power point). Pulse width can be fixed accurately in the pulse forming network and remain stable for many years.

Many radar equipments require multiple pulse widths. This can be achieved in two ways, i.e., by the use of individual pulse forming networks in separate or one container. This, ordinarily, is space consuming upon considering the possibilities of the additive network. (See Fig. c)

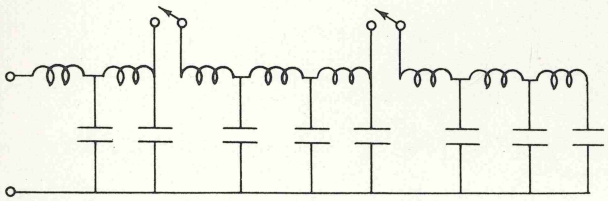


FIG. C

Figure C illustrates a typical additive pulse forming network with the capability of supplying three pulse widths, each working into a nominal design impedance with the same rise time.

RIPPLE is defined as the voltage excursions above and below the average peak amplitude of the pulse feeding a non-reactive resistance load. Designing and manufacturing pulse forming networks with low ripple requires good basic coil design and close tolerance manufacturing. (See Fig. d)

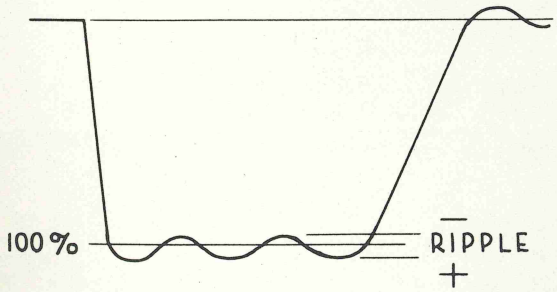


FIG. D

Normal ripple tolerance of 5% for single networks or 7.5% for additive networks excursion from the average peak amplitude is relatively easy to obtain. This ripple percentage is suitable for many applications. However,

CASE BASE DIMENSIONS A	B	K FOOTED BRACKET	SPADE BRACKET	L MAX	G MAX	H	J
1 3/4	1	2 1/2	2 1/16	3 1/16	25/32	*	.213
2 1/2	1 3/16	3 1/4	2 3/4	3 13/16	29/32	*	.213
3 3/4	1 1/4	4 7/16	4	5	29/32	*	.213
3 3/4	1 3/4	4 7/16	4	5	1 1/2	5/8	.213
3 3/4	2 1/4	4 11/16	4	5 1/4	2	1 1/4	.213
3 3/4	3 3/16	4 11/16	4	5 1/4	2 7/8	2	.213
4 9/16	3 3/4	4 11/16	4	5 1/4	4 5/16	3 3/8	.213
6	4 11/16	5 11/16	Not	6 1/4	4 13/16	4 1/4	.213
7 3/8	5 5/8	6 1/2	Avail.	7 1/8	6 1/16	5 1/2	.213
8	4	10 1/8		11 1/4	4 9/32	2 1/8	.437
13 1/2	4 1/8	15 5/8		16 3/4	4 13/32	2 1/8	.437
13 1/2	5 1/8	15 5/8		16 3/4	5 13/32	3 1/8	.437

***Single slot or lug centered—J Hole or slot diameter on footed brackets.**
Brackets for base sizes 4 9/16x3 3/4, 6x4 11/16 and 7 3/8x5 5/8 are mounted on the side parallel to the centerline drawn through the terminals.

it is possible to obtain ripple percentages of plus/minus 2% for single networks and plus/minus 4% for additive networks by closer adjustment of the network component parts.

The listing of two terminal pulse forming networks which follows is intended to give the engineer an insight into the effect of variable size and operation. It is especially interesting to note the effect of repetition rate with various types of capacitor dielectrics.

TEMPERATURE RANGE is indicated at the head of each listing. Please note column which indicates repetition rate for 10°C rise. The ambient temperature plus the internal heat rise should never exceed the maximum of the temperature range. The design repetition rate is based on still air operation.

Example: Part #NH50-500 has an indicated temperature rise of 10°C for a repetition rate of 500 PPS. The heading indicates a maximum ambient temperature of 75°C. This means that at half power input, the ambient could be raised to 80°C, or if the repetition rate was doubled, resulting in a 20°C internal heat rise, the ambient must be lowered to 65°C.

FORCED AIR COOLING and/or the addition of cooling fins can increase the power dissipation of the container. This results in a lower internal heat rise for a given repetition rate or for an increased repetition rate for a given internal heat rise.

The low ambient temperature indicates the lowest temperature at which the pulse forming network is guaranteed to work.

DECAY OR FALL TIME is approximately three times the value of the rise time for a Type E pulse forming network.

PULSE FORMING NETWORKS

SALT SPRAY: All listed pulse forming networks are designed to withstand a 50 hour salt spray test per MIL-Q-151A. 100 hour withstand is also available.

HUMIDITY: Per paragraph 3.12 humidity cycle of MIL-C-25A or 30 day cycle per MIL-E-5272.

VIBRATION: Per MIL-C-25A. 10 to 55 cps for .060" total excursion traversed once per minute. One hour in each plane and using the mounting clamps as used in end equipment.

TEMPERATURE and IMMERSION CYCLING: Per MIL-C-25A paragraph 4.6.9

LIFE TEST: The pulse forming networks are designed to withstand the following life test:

Life test shall be conducted at the high listed ambient temperature with a KVA equivalent to 1.5 rated KVA by either increasing the repetition rate by 50% or by increasing the charging voltage by 22.5% for a period of 250 hours without failure.

IMPEDANCE: The listed pulse forming networks are established for a matching impedance of 50 ohms plus/minus 5 ohms into a resistive load. All other characteristic measurements are also made with a 50 ohm resistive load. Other impedance values are available. Since the impedance largely determines the size of the network for a given duration, a generality might be made whereby the following is substantially true.

The cubical volume of a pulse forming network is inversely proportional to the matching impedance. This statement is made for the engineer who requires another matching impedance for the purpose of evaluating the approximate size.

NETWORKS NOT LISTED:

ADDITIVE NETWORKS The engineers of Plastic Capacitors, Inc. are prepared to design additive networks to your specification. High voltage networks with external coils for high power installations, while not commonplace, are being made regularly to specification. Current peaks of 4000 amperes and charging voltage of 80KV are readily achieved and are not the limit of practicability.

HOW TO SPECIFY

The following information is required for the design of pulse forming networks.

1. Peak charging voltage.
2. Pulse duration — where measured and tolerance.
3. Pulse rise time — where measured and tolerance, if any.
4. Characteristic impedance and tolerance.
5. Repetition rate.
6. Maximum ripple allowable.
7. Temperature range — operational and storage.
8. Operational life required. Describe fully.
9. Decay or fall time, if pertinent.
10. Vibration and shock requirements.
11. Altitude of operation. If pressurized, so state.
12. Forced or natural air circulation.
13. Number of terminals required.
14. Limiting dimensions.
15. Mounting brackets required.
16. Other environmental requirements.
17. Other mechanical requirements such as weight, unusual configuration, etc.

The engineers of Plastic Capacitors, Inc. welcome the opportunity to design and quote high power pulse forming networks.

PULSE FORMING NETWORKS WITH PAPER CAPACITORS
CHARACTERISTIC IMPEDANCE 50 OHMS
TEMPERATURE RANGE −40°C TO +55°C

1000 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NP 10-50	0.5		1 3/4	1	2 1/8
NP 10-100	1.0	5000	1 3/4	1	2 1/2
NP 10-200	2	4200	2 1/2	1 3/16	2 1/8
NP 10-400	4	2100	2 1/2	1 3/16	2 1/8
NP 10-500	5	2200	2 1/2	1 3/16	3

2000 PEAK CHARGING VOLTS

NP 20-50	0.5	2200	1 3/4	1	2 1/8
NP 20-100	1.0	2100	2 1/2	1 3/16	2 1/8
NP 20-200	2	1900	2 1/2	1 3/16	2 1/2
NP 20-400	4	700	2 1/2	1 3/16	3
NP 20-500	5	700	2 1/2	1 3/16	4

3000 PEAK CHARGING VOLTS

NP 30-25	0.25	4200	2 1/2	1 3/16	2 1/2
NP 30-50	0.5	2100	2 1/2	1 3/16	2 1/2
NP 30-100	1.0	1200	2 1/2	1 3/16	3
NP 30-200	2	780	2 1/2	1 3/16	4
NP 30-400	4	380	3 3/4	1 1/4	2 1/2
NP 30-500	5	340	3 3/4	1 1/4	3

4000 PEAK CHARGING VOLTS

NP 40-25	0.25	2400	2 1/2	1 3/16	2 1/2
NP 40-50	0.5	1200	2 1/2	1 3/16	2 1/2
NP 40-100	1.0	700	2 1/2	1 3/16	3
NP 40-200	2	440	2 1/2	1 3/16	4
NP 40-400	4	240	3 3/4	1 1/4	3
NP 40-500	5	220	3 3/4	1 1/4	3 1/2

5000 PEAK CHARGING VOLTS

NP 50-25	0.25	2100	2 1/2	1 3/16	3
NP 50-50	0.5	1000	2 1/2	1 3/16	3
NP 50-75	0.75	700	2 1/2	1 3/16	3 1/2
NP 50-100	1.0	500	2 1/2	1 3/16	3 1/2
NP 50-200	2	335	2 1/2	1 3/16	5
NP 50-400	4	200	3 3/4	1 1/4	3 1/2
NP 50-500	5	200	3 3/4	1 3/4	4 1/2

7500 PEAK CHARGING VOLTS

NP 75-10	0.1	2300	2 1/2	1 3/16	3 1/2
NP 75-25	0.25	920	2 1/2	1 3/16	3 1/2
NP 75-50	0.5	500	2 1/2	1 3/16	4
NP 75-75	0.75	410	3 3/4	1 1/4	3 1/2
NP 75-100	1.0	350	3 3/4	1 1/4	4
NP 75-200	2	230	3 3/4	1 3/4	4 1/2
NP 75-400	4	150	3 3/4	2 1/4	5 1/2
NP 75-500	5	140	3 3/4	3 3/16	5 1/2

10,000 PEAK CHARGING VOLTS

NP100-10	0.1	1900	3 3/4	1 3/4	3 1/4
NP100-25	0.25	760	3 3/4	1 3/4	3 1/4
NP100-50	0.5	430	3 3/4	1 3/4	3 3/4
NP100-75	0.75	300	3 3/4	1 3/4	4
NP100-100	1.0	240	3 3/4	1 3/4	4 1/2
NP100-200	2	175	3 3/4	2 1/4	6
NP100-400	4	130	4 9/16	3 3/4	6
NP100-500	5	140	4 9/16	3 3/4	9

15,000 PEAK CHARGING VOLTS

NP150-10	0.1	900	3 3/4	1 3/4	4 1/2
NP150-25	0.25	430	3 3/4	1 3/4	5
NP150-50	0.5	320	3 3/4	2 1/4	6
NP150-75	0.75	250	3 3/4	2 1/4	9
NP150-100	1.0	210	3 3/4	3 3/16	7
NP150-200	2	170	4 9/16	3 3/4	10
NP150-400	4	100	8	4	7
NP150-500	5	100	8	4	9 1/4

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PULSE FORMING NETWORKS

PULSE FORMING NETWORKS WITH TEFLON CAPACITORS
CHARACTERISTIC IMPEDANCE 50 OHMS TEMPERATURE RANGE −40°C TO +125°C

3000 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NT 30-10	0.1	....	1 3/4	1	2 1/8
NT 30-25	0.25	5000	1 3/4	1	2 1/8
NT 30-50	0.5	2500	2 1/2	1 3/16	2 1/2
NT 30-75	0.75	2000	2 1/2	1 3/16	2 1/2
NT 30-100	1.0	1500	2 1/2	1 3/16	2 1/2
NT 30-200	2	2000	3 3/4	1 1/4	2 1/2
NT 30-400	4	1200	3 3/4	1 1/4	3
NT 30-500	5	970	3 3/4	1 1/4	3

6000 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NT 60-10	0.1	....	2 1/2	1 3/16	2 3/4
NT 60-25	0.25	3000	2 1/2	1 3/16	2 3/4
NT 60-50	0.5	2100	3 3/4	1 1/4	2 3/4
NT 60-75	0.75	1400	3 3/4	1 1/4	2 3/4
NT 60-100	1.0	1050	3 3/4	1 1/4	3
NT 60-200	2	680	3 3/4	1 3/4	3
NT 60-400	4	400	3 3/4	1 3/4	4
NT 60-500	5	360	3 3/4	1 3/4	4 1/2

9000 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NT 90-10	0.1	5000	3 3/4	1 3/4	3
NT 90-25	0.25	2000	3 3/4	1 3/4	3
NT 90-50	0.5	1250	3 3/4	1 3/4	3 1/4
NT 90-75	0.75	890	3 3/4	1 3/4	4 1/2

9000 PEAK CHARGING VOLTS (CONTINUED)

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NT 90-100	1.0	700	3 3/4	1 3/4	3 3/4
NT 90-200	2	530	3 3/4	2 1/4	5 1/2
NT 90-400	4	380	3 3/4	2 1/4	7 1/2
NT 90-500	5	325	3 3/4	2 1/4	7 1/2

12,000 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NT120-10	0.1	4000	3 3/4	2 1/4	4 1/2
NT120-25	0.25	2200	3 3/4	2 1/4	5
NT120-50	0.5	1350	3 3/4	2 1/4	6 1/2
NT120-75	0.75	1040	3 3/4	2 1/4	7 1/2
NT120-100	1.0	780	3 3/4	2 1/4	8 1/2
NT120-200	2	480	3 3/4	3 3/16	8
NT120-400	4	320	4 9/16	3 3/4	9
NT120-500	5	280	4 9/16	3 3/4	10

15,000 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NT150-10	0.1	3500	3 3/4	2 1/4	5
NT150-25	0.25	1500	3 3/4	2 1/4	6
NT150-50	0.5	1000	3 3/4	3 3/16	6
NT150-75	0.75	750	3 3/4	3 3/16	7
NT150-100	1.0	680	4 9/16	3 3/4	7
NT150-200	2	400	4 9/16	3 3/4	9

PULSE FORMING NETWORKS WITH POLYETHYLENE CAPACITORS
CHARACTERISTIC IMPEDANCE 50 OHMS
TEMPERATURE RANGE −60°C TO +75°C

2500 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NH 25-10	0.1	....	2 1/2	1 3/16	2 1/8
NH 25-25	0.25	....	2 1/2	1 3/16	2 1/8
NH 25-50	0.5	....	2 1/2	1 3/16	2 1/2
NH 25-100	1.0	3600	2 1/2	1 3/16	2 1/2
NH 25-200	2	2800	3 3/4	1 1/4	2 1/2
NH 25-400	4	1400	3 3/4	1 1/4	2 1/2
NH 25-500	5	1240	3 3/4	1 1/4	2 3/4

5000 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NH 50-10	0.1	....	2 1/2	1 3/16	2 3/4
NH 50-25	0.25	....	2 1/2	1 3/16	2 3/4
NH 50-50	0.5	3000	3 3/4	1 1/4	2 3/4
NH 50-100	1.0	1620	3 3/4	1 1/4	3
NH 50-200	2	1160	3 3/4	1 3/4	3
NH 50-400	4	930	3 3/4	1 3/4	4
NH 50-500	5	500	3 3/4	1 3/4	4 1/4

7500 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NH 75-10	0.1	....	3 3/4	1 1/4	2 3/4
NH 75-25	0.25	2500	3 3/4	1 1/4	2 3/4
NH 75-50	0.5	1300	3 3/4	1 1/4	2 3/4
NH 75-75	0.75	1000	3 3/4	1 1/4	3 1/4
NH 75-100	1.0	940	3 3/4	1 1/4	4 1/4
NH 75-200	2	550	3 3/4	1 3/4	4 1/4
NH 75-400	4	460	3 3/4	2 1/4	7 1/2
NH 75-500	5	450	3 3/4	3 3/16	7 1/2

10,000 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NH100-10	0.1	4000	3 3/4	1 3/4	3 1/4
NH100-25	0.25	2000	3 3/4	1 3/4	3 1/4
NH100-50	0.5	1150	3 3/4	1 3/4	4
NH100-75	0.75	910	3 3/4	1 3/4	4 3/4
NH100-100	1.0	760	3 3/4	1 3/4	5 1/2
NH100-200	2	525	3 3/4	2 1/4	7
NH100-400	4	380	3 3/4	3 3/16	9
NH100-500	5	400	8	4	5 1/4

12,500 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NH125-10	0.1	4300	3 3/4	1 3/4	4
NH125-25	0.25	1700	3 3/4	1 3/4	4
NH125-50	0.5	860	3 3/4	2 1/4	4
NH125-75	0.75	620	3 3/4	2 1/4	4 1/2
NH125-100	1.0	600	3 3/4	2 1/4	6
NH125-200	2	450	3 3/4	3 3/16	8
NH125-400	4	390	8	4	7
NH125-500	5	310	8	4	7

15,000 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NH150-10	0.1	3000	3 3/4	1 3/4	4 1/2
NH150-25	0.25	1200	3 3/4	2 1/4	4
NH150-50	0.5	730	3 3/4	2 1/4	5
NH150-75	0.75	200	3 3/4	2 1/4	6 1/2
NH150-100	1.0	580	3 3/4	3 3/16	7 1/2
NH150-200	2	440	8	4	5 1/4
NH150-400	4	300	8	4	9 1/4
NH150-500	5	260	8	4	9 1/4

20,000 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NH200-10	0.1	2800	4 9/16	3 3/4	4 1/2
NH200-25	0.25	1200	4 9/16	3 3/4	5
NH200-50	0.5	630	4 9/16	3 3/4	5 1/2
NH200-75	0.75	520	4 9/16	3 3/4	7
NH200-100	1.0	500	8	4	5 1/4
NH200-200	2	300	8	4	7
NH200-400	4	800	13 1/2	4 1/4	9 1/4

25,000 PEAK CHARGING VOLTS

PART NUMBER	MICRO SECOND PULSE	P P S PER 10°C RISE	CASE DIMENSIONS A	B	C
NH250-10	0.1	1900	4 9/16	3 3/4	5
NH250-25	0.25	800	4 9/16	3 3/4	5 1/2
NH250-50	0.5	600	4 9/16	3 3/4	9
NH250-75	0.75	520	8	4	7
NH250-100	1.0	470	8	4	9 1/4
NH250-200	2	1080	13 1/2	4 1/4	9 1/4

WP 4-86

POWER PACKS

COMPACT "M" SERIES – 1 TO 75 KVDC

The HV-M suffix power packs were designed with these thoughts in mind. Small size, hermetically sealed, adjustable output voltage by means of adjusting the input voltage, a wide frequency range of input voltage, i.e. 50 to 500 Hz long life, low ripple characteristics, capable of withstanding vibration and shock, and the output independent of the case so either the positive or negative terminal may be grounded.

All these features have been achieved and are the latest development in the state of the art for production of power supplies consistent with economy. In order to achieve these results the finest components are used.

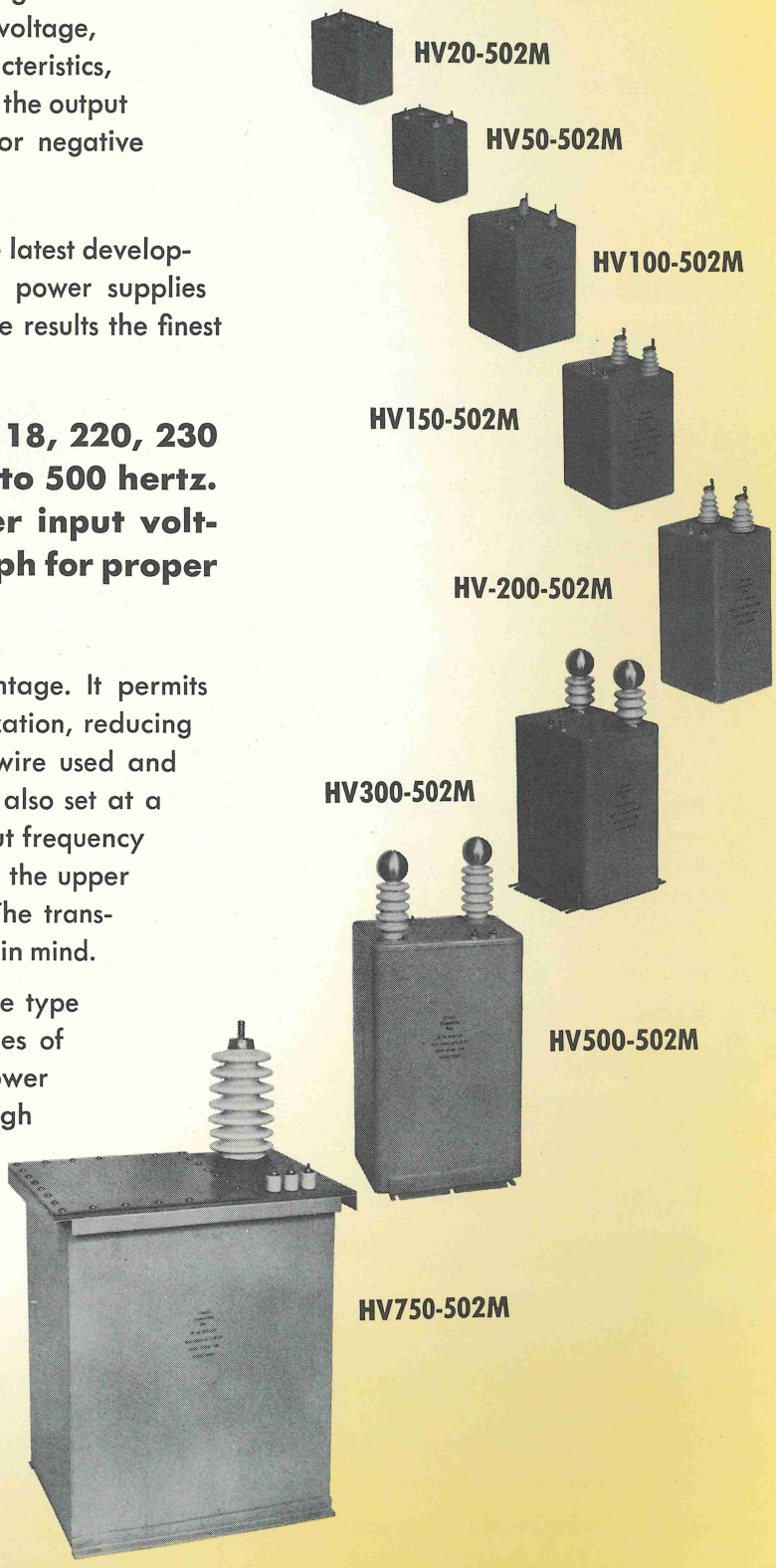
Standard line input voltages are 118, 220, 230 and 240 volts at frequencies of 50 to 500 hertz. All items can be modified for other input voltages. See "How To Order" paragraph for proper selection of part numbers.

Grain oriented iron results in a five-fold advantage. It permits operation of the iron at a much higher magnetization, reducing the size of the transformer and the amount of wire used and consequently the wire losses. The iron losses are also set at a lower value, enabling operation over a wider input frequency range such that the losses are the same or less in the upper frequency range than at the lowest frequency. The transformer is designed with a good order of regulation in mind.

The capacitors are the very smallest high voltage type available which allows the usage of larger values of capacitance and results in better regulation and lower ripple. The silicon rectifiers are the thin wafer high voltage type, which conserve space.

The terminals are the solder seal type, more costly than the standard gasketed type but the usage assures true hermetic sealing.

The containers are steel, hot-tinned or lead coated, and are finished with a primer coat and finish coat of synthetic lacquer.



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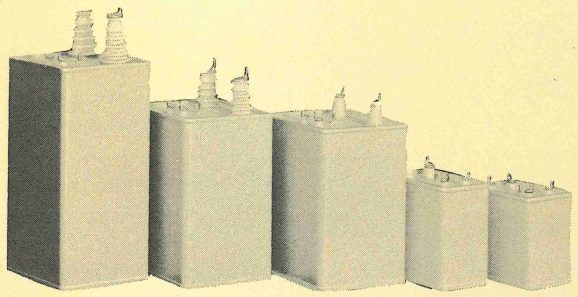
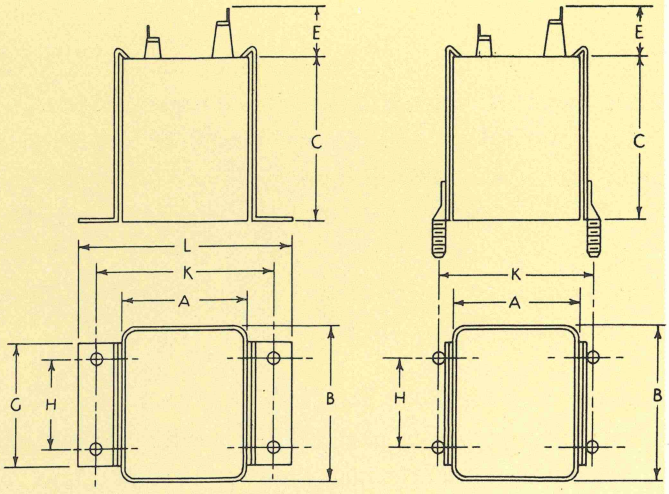
POWER PACKS

COMPACT "M" SERIES – 1 TO 75 KVDC



20 KV 15 KV 10 KV 5 KV 2 KV



The "M" Series Power Packs are the most modern design. Long life and a small package directed the use of the latest techniques and advanced materials. Many features have been incorporated with the highest quality materials, at the same time maintaining economy of cost.

THE "M" SERIES POWER PACKS HAVE THESE TWENTY IMPORTANT FEATURES.

1. **Input** voltage standards are 0 to 118V, 220V, 230V and 240V at frequencies from 50 to 500 hertz.*
2. **Output Potentials** range from 1000 volts to 75,000 volts. All items can be modified for lower voltages, that is, the 5KV output may be modified to provide 4KV output, etc.
3. **Output Potential** can be varied from 0 to rated voltage and load by means of a variable auto transformer.
4. **Output currents** have been standardized for a maximum of 1.5, 5 or 10 milliamperes. Any unit may be used at a lower current than the nameplate rating.
5. **Ripple** 1% RMS or 2.75% peak to peak at rated voltage.
6. **Two Output Terminals** are isolated from the container, permitting either terminal to be operated away from ground. CAUTION: The container must be connected to a potential within the range of the POWER PACK, i.e. to some point on the bleeder string if not to a terminal.

EXCEPTION: The HV750-502M and HV750-152M are provided with a single high voltage output terminal. These power packs are normally furnished to deliver a positive output potential relative to ground. If a negative output is desired it can be shipped as such from the factory, Add suffix letter "A".

7. **Ambient Temperature Range** is minus 55° C to plus 85° C (with limited ratings)

EXCEPTION: HV375-103M and HV750-502M are limited to an ambient temperature range of 0 to 50° C.

8. **Design Life**
   40,000 hours at 35° C
   25,000 hours at 65° C
   5,000 hours at 85° C (see note)

Note: At 85° C the output current is limited to 80% of the nameplate output current rating.

*See "How To Order" paragraph.

9. **Mounting Position**
   Any mounting position can be used except the HV750-502M and HV375-103M are designed to operate in an upright position.
10. **Altitude** up to 10,000 feet operating; 50,000 feet non-operating.
11. **Vibration.**
    Most power packs are capable of withstanding 10-55 CPS with a total excursion of 0.06 inches for two hours in each plane without failure.

EXCEPTION: Type HV750-502M and HV375-103M are designed for bench handling, general laboratory use and for use in equipment not subject to excessive shock and handling.

12. **Salt Spray** per MIL-Q-151 for 50 hours.
13. **Rectifiers** are pre-aged long life silicon type, properly selected and used under de-rated conditions to assure long life.
14. **Filter Capacitors** are special film types of our own manufacture and designed in particular for long life.
15. **Hermetically Sealed Container** Sealing is accomplished with seamed and soldered CP70 type container, and solder seal bushings.

EXCEPTION: HV375-103M and HV750-502M have a neoprene rubber seal between the cover and the container.

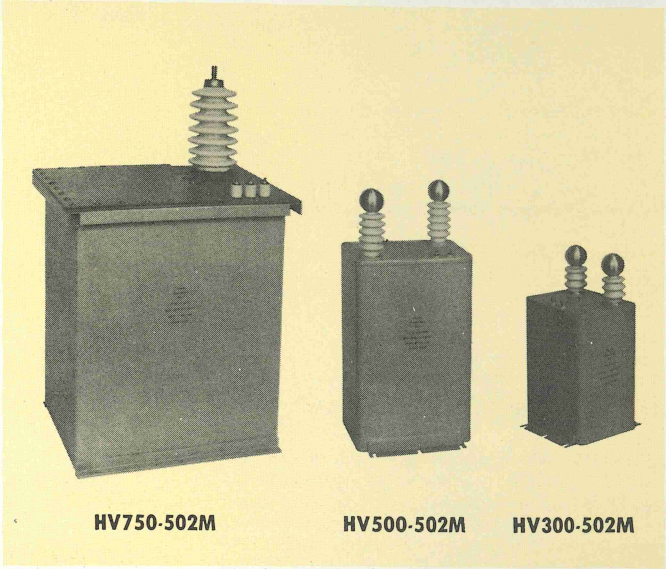
16. **Oil Filled Container** prevents corona. The oil is inhibited, de-gassed and filtered.
17. **Container Finish** Zinc chromate primer and light green-gray lacquer per MIL-L-7178.
18. **Terminals** are steatite, solder seal type with solder lug or stud terminals.
19. **Corona.** All power packs with nameplate ratings of 30 kilovolts or more are supplied with aluminum corona spheres for the high voltage terminal (s). This sphere is used to prevent excessive corona discharge and terminal leakage. It is provided with 1/8" diameter holes to accept a miniature banana jack.
20. **Regulation** is given in the power pack listing as approximate output voltage change per milliampere output with rated input voltage at 60 hertz per second.

POWER PACKS

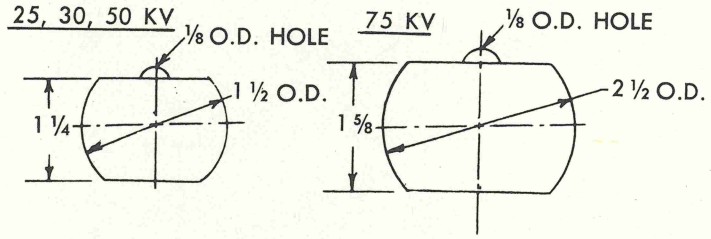
COMPACT "M" SERIES — 1 TO 75 KVDC

HV-M POWER PACKS — Variations Available

1. **Output modification**
   Any unit may be modified to a lower DC output voltage at the same or a lower current rating. That is if 3 KV DC output at 3 milliamperes with 118V 60 hertz is required. The HV50-502M can be modified by substituting the high voltage transformer to suit the requirements.
2. **Input**
   Any unit can also be modified, within limits, for various primary voltages. Primaries may be modified, in most units, from 24 volts to 1000 volts.
3. **Center Tapped Output**
   All units which have a rated output current of 1.5 or 5 milliamperes may be modified to produce half voltage output, both positive and negative, in reference to the container. That is, the HV100-502M may be modified to deliver both positive and negative 5000 volts each at 5 milliamperes. The reference point is the container, and the part number will be HV100-502MT. The suffix letter T indicates the center-tapped output variation.



HV750-502M HV500-502M HV300-502M



HOW TO ORDER

1. Select part number for voltage and current requirements.
2. If the primary voltage is 0 to 118 volts in the frequency range of 50 to 500 Hz. the part number selected in paragraph 1 is proper.
3. If the primary voltage is 220V, 230V and 240V add suffix "W" to the part number selected in paragraph 1.
4. If a center tapped output is required add suffix "T" to the part number previously selected. See paragraph on variations of the HV-M power packs.

*SPADE BOLT MOUNTING NOT AVAILABLE

PART NUMBER	KV RANGE	MAX. MA.	A	B	C	E	G	H	K FOOTED BKT	L	APPROX. REGULATION VOLTS/MIL	APPROX. WT. LBS.	K SPADE BKT
HV10-152M	0-1	1.5	3 3/4	1 3/4	3 3/8	3/8	29/32	5/8	4 3/8	5 1/4	105	1	4
HV20-152M	0-2	1.5	3 3/4	1 3/4	3 3/8	3/8	29/32	5/8	4 3/8	5 1/4	140	1	4
HV50-152M	0-5	1.5	3 3/4	2 1/4	3 3/8	9/16	2	1 1/4	4 3/8	5 1/4	400	2	4
HV100-152M	0-10	1.5	3 3/4	3 3/16	4 1/2	1	2 7/8	2	4 3/8	5 1/4	1500	4	4
HV150-152M	0-15	1.5	3 3/4	3 3/16	5 1/2	1 11/16	2 7/8	2	4 3/8	5 1/4	1600	5	4
HV200-152M	0-20	1.5	3 3/4	4 9/16	5 7/8	2 1/8	4 5/16	3 3/8	4 3/8	5 1/4	1740	9	4
HV300-152M	0-30	1.5	3 3/4	4 9/16	7 1/2	3 1/4	4 5/16	3 3/8	4 3/8	5 1/4	2100	11	4
HV500-152M	0-50	1.5	4 11/16	6	8 1/2	4 5/16	4 7/8	4 1/4	5 3/8	6 1/4	6000	18	*
HV750-152M	0-75	1.5	5 5/8	7 3/8	12 1/8	6 15/16	6 1/16	5 1/2	6 3/8	7 1/4	4700	45	*
HV20-502M	0-2	5	3 3/4	2 1/4	3 3/8	3/8	2	1 1/4	4 3/8	5 1/4	120	2	4
HV50-502M	0-5	5	3 3/4	2 1/4	3 3/4	9/16	2	1 1/4	4 3/8	5 1/4	280	3	4
HV100-502M	0-10	5	3 3/4	4 9/16	5 7/8	1	4 5/16	3 3/8	4 3/8	5 1/4	500	8	4
HV150-502M	0-15	5	3 3/4	4 9/16	6 1/8	1 11/16	4 5/16	3 3/8	4 3/8	5 1/4	520	11	4
HV200-502M	0-20	5	3 3/4	4 9/16	8	2 1/8	4 5/16	3 3/8	4 3/8	5 1/4	860	12	4
HV300-502M	0-30	5	4 11/16	6	8 1/2	3 5/16	4 7/8	4 1/4	5 3/8	6 1/4	1000	22	*
HV500-502M	0-50	5	5 5/8	7 3/8	12 1/8	4 5/16	6 1/16	5 1/2	6 3/8	7 1/4	1200	40	*
HV750-502M	0-75	5	11 1/8	14 1/16	16 1/4	7	12 1/2	10 1/2	10 1/2	11 1/8	2200	124	*
HV10-103M	0-1	10	3 3/4	2 1/4	3 3/8	3/8	2	1 1/4	4 3/8	5 1/4	36	2	4
HV25-103M	0-2.5	10	3 3/4	2 1/4	3 3/4	9/16	2	1 1/4	4 3/8	5 1/4	76	3	4
HV50-103M	0-5	10	3 3/4	4 9/16	5 7/8	1	4 5/16	3 3/8	4 3/8	5 1/4	137	11	4
HV100-103M	0-10	10	3 3/4	4 9/16	8	1	4 5/16	3 3/8	4 3/8	5 1/4	265	12	4
HV150-103M	0-15	10	4 11/16	6	8 1/2	1 11/16	4 7/8	4 1/4	5 3/8	6 1/4	285	20	*
HV250-103M	0-25	10	5 5/8	7 3/8	12 1/8	3 5/16	6 1/16	5 1/2	6 3/8	7 1/4	300	45	*
HV375-103M	0-37.5	10	11 1/8	14 1/16	16 1/4	4 3/4	12 1/2	10 1/2	10 1/2	11 1/8	1300	124	*

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SOLID STATE POWER PACKS and FILTERS

GENERAL FEATURES

Our facilities permit the finished power supply or filter to be cast as a solid epoxy assembly, dipped epoxy, oil filled, air insulated, or any combination of these features. The decision which influences the method of insulation between parts depends on many factors: Voltage, heat generation, size requirements, altitude, shock, vibration, etc.

These power packs or filters can be cased or of open chassis construction, with or without dust covers. Thin rack type units can also be designed. Terminations can be plug-in high voltage connectors, stand-off steatite terminals, or wire leads. Low voltage test points or metering circuits can be included in the design. Filament voltages or high AC voltages can also be included.

MATERIALS AND FACILITIES

Selenium rectifiers are generally used for currents up to 10 milliamperes. Silicon rectifiers are used for higher currents or higher temperatures. Class O, A, B or F insulation is used to meet specific operating temperatures. Special capacitors and transformers designed for the specific power packs and filters are built at PLASTIC CAPACITORS, INC. All basic materials are supplied by well established firms which maintain high quality levels. Components are chosen with adequate deratings to meet specifications. Complete environmental testing facilities are available at our plant.

It is desirable for certain types of apparatus and equipment to design with encapsulated components. The PCI "F" series consist of filter and rectifier networks, encapsulated in epoxy.

These are vacuum processed and pressure filled to be void free. Epoxies are used which have high thermal shock resistance as well as suitable electrical characteristics. The encapsulated components are made of treated materials which are compatible with the epoxies. Cases are made of an insulating material. The usual finish is light blue-gray lacquer. The resulting package is capable of withstanding thermal and mechanical abuse.

Low voltage terminations are brought out to solderable turret lugs or wire leads. High voltage terminations are brought out with high voltage cables or to high voltage jacks. Mounting provisions are stainless steel studs extending from the base of the case. The following types are available.

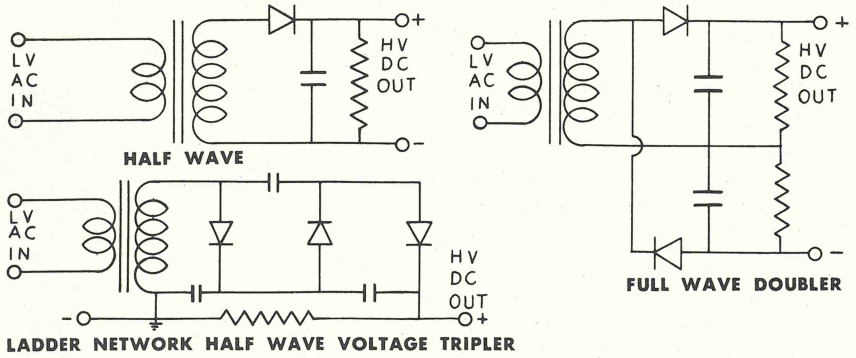
HOW TO SPECIFY

The following information, if pertinent, is required to properly design filters, power supplies, etc. This data will enable the PCI engineering staff to design the optimum unit.

1. Input Voltage Including Variation.
2. Input Frequency Including Variation.
3. Output Voltage Including Tolerance.
4. Output Current Including Variation and Type of Load.
5. Ripple in Percent RMS or Percent Peak to Peak.
6. Altitude Operating and Transport.
7. Vibration Requirements.
8. Humidity and Salt Spray.
9. Life Expectancy.
10. Terminations.
11. Enclosure.
12. Metering.
13. End Use.

FX-TYPE

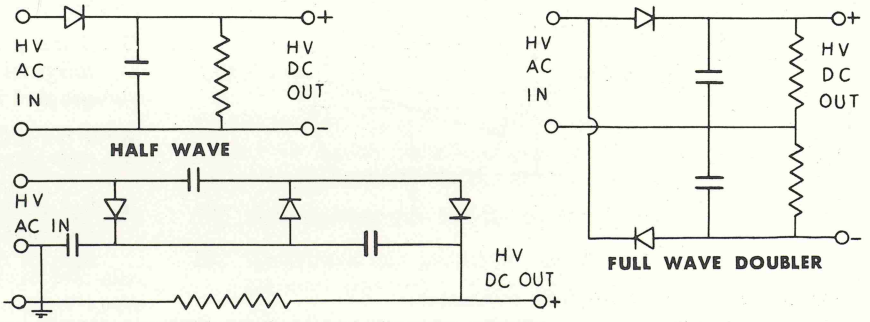
These are complete POWER PACKS which operate from 60 cycle or 400 cycle sources. They contain the high voltage transformer, rectifiers, capacitors and resistors.



Selenium or silicon rectifiers can be supplied depending on current and temperature requirements. Output potential can be supplied from a 1000 volts up to 25,000 volts DC. Ripple levels as low as 0.1% can be maintained.

FR-TYPE

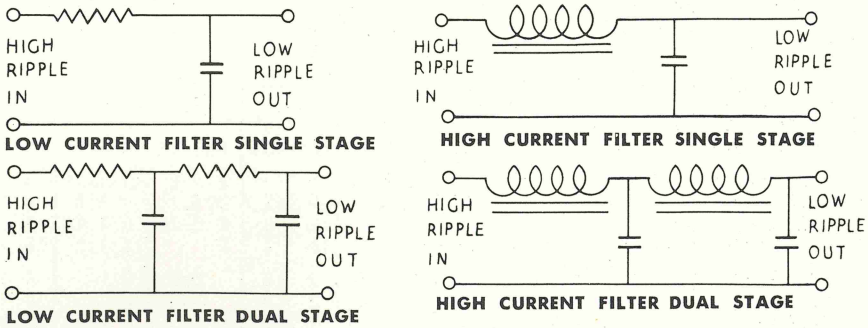
The FR-type circuitry consists of rectifiers, capacitors, inductors and resistors as required. They are designed to operate from an external transformer which can be powered by line frequencies of 60 and 400 cycles, and by other sources of power up to 10KC.



A sine wave, square wave or other wave shape can be used. A considerable size and ripple reduction can be made by operating the POWER PACKS at high frequencies. Half wave or full wave multipliers can be made for low power level units to reduce transformer size.

FF-TYPE

PCI filter blocks are useful where ripple reduction and small size are necessary. Less output capacitance results which reduces the RC time constant and shock hazard.



Series resistors or chokes are provided depending on the current and regulation desired. Load currents up to 5 ma approximately can economically utilize resistors.

Chokes are more efficient at current levels above 5 ma. One or more stages of Pi networks can be included in one or more blocks.

WP 4.86

DATE: _____

PLASTIC CAPACITORS, INC.
2623 NORTH PULASKI ROAD
CHICAGO, ILLINOIS 60639

PHONE: 312-489-2229
TWX: 910-221-1354

CUSTOM DESIGN DATA - CAPACITORS

CUSTOMER _____ ADDRESS _____

ENGINEER _____ BUYER _____

PHONE NUMBER _____ REPRESENTATIVE _____

PROJECT OR END USE APPLICATION _____

_____

CIRCUIT:

COUPLING _____
BY PASS _____
FILTER _____
ENERGY STORAGE _____
TUNED CIRCUIT _____

CAPACITANCE _____ MFD + _____ % - _____ %
OPERATING VOLTS DC _____
PEAK TO PEAK RIPPLE VOLTAGE _____
RIPPLE FREQUENCY _____
OPERATING VOLTS AC _____
AC FREQUENCY _____
SURGE VOLTAGE _____
DURATION OF SURGE _____
REPETITION RATE OF SURGE _____

ENVIRONMENT TEMPERATURE

OPERATING _____ TO _____ C
STORAGE _____ TO _____ C
MIL SPEC _____
HUMIDITY _____
VIBRATION _____
SHOCK _____
SALT SPRAY _____

HIGH FREQUENCY APPLICATIONS

FREQUENCY _____
MAX. CURRENT _____
PEAK VOLTAGE _____

OTHER CIRCUIT REQUIREMENTS

LIFE _____
STABILITY CHANGE P/YEAR _____
RETRACE _____
TEMPERATURE COEFFICIENT _____

ENERGY STORAGE AND PULSE

CHARGE VOLTAGE _____ DC
DISCHARGE CURRENT _____ AMPS
INTO LOAD OF _____ OHMS RESISTANCE
DISCHARGE TO _____ VOLTS
DISCHARGE TIME _____
CHARGE TIME _____
VOLTAGE REVERSAL TO _____ %
REPETITION RATE _____
INDUCTANCE REQUIREMENT: _____

RESISTANCE

MEGOHMS _____ AT _____ C
MEGOHMS _____ AT _____ C

OTHER ELECTRICAL REQUIREMENTS _____

INDICATE PHYSICAL REQUIREMENTS AND LIMITATIONS

SHAPE _____ DIMENSIONAL REQUIREMENTS _____

PCI ENGINEERS WILL ANALYZE OTHER FACTORS WHICH MIGHT BE APPLICABLE IF A CIRCUIT IS SHOWN

WAVE SHAPES _____

VOLTAGE _____

CURRENT _____

PLEASE USE THE REVERSE SIDE OF THIS SHEET FOR OTHER PERTINENT DATA AND/OR CIRCUIT SCHEMATIC.

DATE: _____

PLASTIC CAPACITORS, INC.
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CHICAGO, ILLINOIS 60639

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CUSTOM DESIGN DATA - PULSE-FORMING NETWORKS

CUSTOMER _____ ADDRESS _____

ENGINEER _____ BUYER _____

PHONE NUMBER _____ REPRESENTATIVE _____

PROJECT OR END USE APPLICATION _____

_____

PEAK CHARGING VOLTAGE _____

PULSE LENGTH _____ MICROSECONDS AT _____ %PEAK AMPLITUDE _____
(IF POSSIBLE SPECIFY AT 70% AMPLITUDE)

RISE TIME _____ MICROSECONDS MEASURED FROM _____ % TO _____ % PEAK AMPLITUDE

REPETITION RATE _____ PULSES PER SECOND.

MAXIMUM RIPPLE ALLOWABLE _____. (% PEAK TO PEAK)

DECAY OR FALL TIME, IF PERTINENT _____

CHARACTERISTIC IMPEDANCE _____ OHMS. ± _____ % (50 OHMS IS OUR STANDARD)

TEMPERATURE RANGE OPERATING _____ °C TO _____ °C

NON-OPERATING _____ °C TO _____ °C

LIFE REQUIRED (DESCRIBE CONDITIONS) _____ HOURS

VIBRATION, SHOCK OR ALTITUDE REQUIREMENTS? PLEASE DETAIL BELOW.

IF TERMINAL LOCATIONS OR ANY LIMITING PHYSICAL DIMENSIONS ARE CRITICAL, PLEASE USE THIS SPACE FOR SKETCH, SPECIAL OR OTHER REQUIREMENTS SHOULD ALSO BE NOTED.

DATE: _____

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CUSTOM DESIGN DATA - HIGH VOLTAGE POWER PACKS

CUSTOMER _____ ADDRESS _____

ENGINEER _____ BUYER _____

PHONE NUMBER _____ REPRESENTATIVE _____

PROJECT OR END USE APPLICATION _____

_____

INPUT VOLTAGE (AC) _____ NOM.
_____ MIN.
_____ MAX.

INPUT FREQUENCY (HZS.) _____ NOM.
_____ MIN.
_____ MAX.

RIPPLE _____ %RMS.
_____ % PEAK TO PEAK

REGULATION _____ VOLTS/MILLIAMPERES
_____ OTHER

LIFE _____ HOURS

OUTPUT VOLTAGE _____ VDC AT NO LOAD
_____ VDC AT FULL LOAD

OUTPUT CURRENT _____ MILLIAMPERES AT FULL LOAD

OUTPUT POLARITY _____ NEGATIVE _____ POSITIVE

OTHER OUTPUTS, OR OUTPUT CHARACTERISTICS _____
_____
_____
_____

TEMPERATURE RANGE
OPERATING _____ DEGC MAX. STORAGE _____ DEGC MAX.
_____ MIN. _____ MIN.

_____

OTHER CIRCUIT OR PHYSICAL REQUIREMENTS

CONTAINER DIMENSIONS (OR MAXIMUM SIZE LIMITATIONS IF APPLICABLE) _____

_____

VIBRATION _____ SHOCK _____ HUMIDITY _____ ALTITUDE _____

MOUNTING REQUIREMENTS _____ BRACKETS _____ STUD OR INSERT

FOR TERMINAL LOCATIONS, SPECIAL CONFIGURATIONS, PLEASE USE THE BACK OF THIS SHEET FOR YOUR SKETCH.

_____

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